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The Home Student's Aid

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HOME STUDENT'S AID.

W. F. ROCHELEAU, EDITOR.

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HOME STUDENT'S AID



SUPPLEMENTING THE
OUTLINE TEXT OF THE
INTERSTATE SCHOOL
OF CORRESPONDENCE



INTRODUCTION.

In presenting the Student's Aid to our members, it is our desire to make it a means of giving additional information on the subjects treated in the outline texts. The Aid is so planned that each number will be especially helpful in the study of the corresponding number of the outline text. Those articles having special reference to the lessons of the month are designated by directions for their use, which appear directly under the title; as, for example, the article *Commerce of the United States* is to be studied in connection with the lesson on geography.

In addition to the articles to be used directly with the lessons, the Aid will contain directions to students about their work, and especially in regard to the preparation of their answer papers. The purpose of these directions is to enable our members to do better and more thorough work.

There will also appear articles on methods of teaching and school management. These articles are prepared by those who have spent their lives in school work, and contain such suggestions as experience has proved to be helpful. The value of the Aid to the member will depend

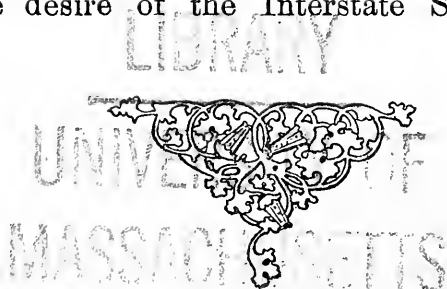
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almost wholly upon how it is received. It is not the outline text, neither can it take the place of that work. It is, however, a suggestive helper to the home student; and by carrying out its suggestions and using the information it contains, one can gain valuable assistance from it.

To the active mind a suggestion is often more valuable than a direct rule of procedure. The suggestion enables one to inject his personality into the work; the rule makes him a machine. The world demands men who put their brains into their work, and the student who learns to devise the best plans of doing his work while pursuing a course of study, will carry the same habit into whatever vocation he follows, and such a one is sure to advance. Suggestions are one means of advancing ideals, and these should move forward as one grows in knowledge and power. To the progressive man the ideal of yesterday will not do for to-day, nor will that of to-day suffice for to-morrow. Like the Quaker poet in his boyhood, he, too, will sing,—

*Still as my horizon grew,
Larger grew my riches, too.*

That each fact learned, each principle mastered, each problem solved, each new beauty discovered in nature, literature, or art, may add richness to the life and true nobility to the character of every one of our members, is the sincere desire of the Interstate School of Correspondence.



HOW TO STUDY.



THE spirit of self-help is the root of all genuine growth in the individual. Much of success is due to the influences of early surroundings. Country life is well suited to the development of sturdy character, and country boys and girls may hail with joy the opportunities for character building with which they are surrounded. What is needed is a right use of these opportunities.

The present mail facilities, and the low price of many excellent periodicals as well as the works of the masters in literature, now make it possible for every home in country or town to contain the treasures of the world's best thought. And how much can be accomplished, even in a single year, towards making these treasures our own, thus enriching our lives for all future time! The universe is made up of atoms, and human life is but the aggregate of small acts. *The race is not to the swift, nor the battle to the strong*, but victory is sure to perch upon the banner of the patient, persistent worker. The right use of each hour as it comes will enable one to enrich his mind with the treasures of knowledge.

The opportunities for study which the quiet of the home offers are unequalled. The way he has used the leisure hours at home has determined the success or failure of many a young man. An old Latin proverb says, *Opportunity has hair in front, behind she is bald; if you seize her by the forelock, you may hold her, but if suffered to escape, not Jupiter himself can catch her again.* Are you

allowing opportunity to escape each day? Do you make the best possible use of your leisure hours? Are you so using your time this year that you will be prepared for greater responsibilities, a better position, and larger usefulness next year? These and similar questions should be considered by every young man and young woman.

To those who desire self-improvement the correspondence school offers its assistance, providing systematic courses of study and such additional help as will enable its students to complete successfully any branches which they desire to pursue. An hour a day spent in systematic study of any subject amounts to three hundred hours in a year, and in this time much can be accomplished toward the mastery of the subject.

Self-improvement requires effort, but success along any line requires effort; yes, strenuous, persistent effort, and the greater the effort, the more valuable the victory. It is only by severe exercise that we gain strength either of body or mind, and we should rejoice in those struggles that give us the sinews of character. In the final analysis of life each must stand on his own merits, and he who has learned early in life to solve problems and conquer difficulties for himself, goes into the world with much greater strength than one who has always relied upon the aid of an instructor.

Education — and education includes ability to use our knowledge — is essential to success in any calling. But more than this, a well-furnished intellect and a cultured will are essential to our own happiness, and the most powerful of all arguments for self-culture is the effect of such culture upon the individual. Again it is always well to be prepared for emergencies. Everyone needs to know

much more about his vocation than what may be necessary to enable him merely to discharge his daily routine of duties. The people who prepare for emergencies are the ones who secure advanced positions when the opportunity is presented.

When one has learned how to study, he has obtained the best part of his education; for he has acquired the power which will enable him to master any subject, provided he possess the necessary patience and perseverance. The men who are considered great geniuses, and who have moved the world, have been able to accomplish great things because they were able to attend to subjects longer and more systematically than their fellows. Most genius in the world is the genius of hard work. The following directions for study are given in the hope that they may save some waste of effort and be found generally helpful.

Study is an art, and possibly a science, at least it involves most of the principles of psychology. How to study so as to secure the best results for the time and effort expended is an important question for every student, but it is especially important to the correspondence student, who during his study must rely mostly upon his own effort. Yet this is in the end to his advantage, rather than his hindrance. Many pupils who make glib recitations in the schoolroom, often find that they are without resources when thrown upon themselves after leaving school. They have been carried through school largely by the efforts of others, and have memorized definitions and rules without comprehending the underlying principles. The home student must work these principles out for himself, and in so doing becomes master of the subjects which he pursues.

Study for the right development of your mental powers. The question is not so much *what* you learn as *how* you learn; the facts acquired are of less importance than the *mental power gained through this acquisition*. The great end and aim of study is growth, power; and this can be attained only by mastering the principles of the subject studied. The measure of your knowledge of any subject is your ability to use that subject. You have studied arithmetic. Can you go into a store, take an invoice, add the cost of transportation to the original cost of the goods, and to this the merchant's required per cent of gain, and mark the selling price upon the various articles named? Can you go into an office and reckon the interest or discount on the bills that may be presented to you? The extent to which you can do these things shows your knowledge of percentage.

Study principles rather than rules. When you comprehend the principles of a science in their relation to each other, and to other sciences, the rules will take care of themselves. In fact, your best rules will be those which you deduce from this study. Rules are based upon principles, and unless the principles are understood, the rules are of little value.

Study subjects in their relation to each other. Note the vital connection between history and geography, and between literature and all other sciences; trace these connections to the fullest possible extent. It is only in this way that the full significance of any subject can be understood.

Study to remember principles and facts in their natural order and true relations. By so doing you will have your knowledge at your command when needed. The illogical

memory is like a disarranged chest of drawers,—from which every article may have to be taken before the one needed is brought to light.

While you study, put your best effort into your work. Never allow yourself more time than is necessary. Many people permanently injure their capacity for mental work by acquiring listless habits of study.

Have a regular time for study and as far as possible adhere to it. This time should be so fixed that you can go to the work fresh in body and mind. Other things being equal, the morning hours are best for study. Where this is not possible, evening hours following a period of relaxation can be used to good advantage. Regularity in the work is of greater importance than the hour selected.

Make wise use of reference books and periodicals. By this is meant such a use as will supplement the work you are studying. Reading a long article on United States history in a cyclopedia when studying the subject Slavery, would not be making a wise use of the cyclopedia, unless the entire article bore upon the subject. Only that portion of the article which will add to the text in hand is needed.

Avoid plodding and drudgery; these are not real study; when you fall into this state of mind, your powers are half asleep and you better stop and rest.

Avoid studying one subject too long at a time. When the mental powers have been concentrated on one subject for a long time, they become weary and need a change.

Remember that the success of your study is measured by the extent to which you have made a right use of your powers, rather than by the immediate solution of problems or memorizing of facts.

PREPARATION OF ANSWER PAPERS.



FEW students realize the value to their manuscripts of neatness and careful penmanship. If writers would remember to keep the red lines always at the *left*, and not to write where there is no ruled line; to put their names, certificate numbers, and the number of the month at the top of each sheet, and to arrange the subjects in consecutive order, the result would be a great improvement in many of the manuscripts. It would also be a great convenience if each student would pin his papers together, thus preventing the possibility of their being separated.

Two of the most important requisites for a good paper are correct spelling and properly constructed sentences. When we read a manuscript where misspelled words appear again and again, we feel convinced that the writer has had no training along that line, or if training has been available, he has slighted his opportunity. One of the most common mistakes in spelling is that of interchanging *i* and *e* where they come together in a word. *Recieve* and *beleive* occur quite frequently in the papers. A simple rule for such words is that after *c*, *e* comes first, and after *l*, *i* comes first. Another mistake is that illustrated in such words as *nameing*, *bakeing*, etc. In words ending in *e* the *e* is dropped before a suffix beginning with a vowel, unless it is necessary to indicate the meaning or pronunciation of the word. There are a number of such simple rules for spelling, but the bulk of words must be learned outright, and fixed by constant practice.

Words should be studied not only as units, but as wholes, made up of several parts, or syllables. Syllables should never be divided. Such division weakens one's own composition, and destroys the force of the words so treated. *Contempt* was not intended to be written *contem-pt*, nor *strengthen*, *streng-then*. Where a word of more than one syllable occurs at the end of a line, it should be divided by syllables, or carried to the next line without division.

After learning to spell words and to divide them according to syllables, there is one more step necessary before combining them into phrases and clauses; i. e., to have an accurate knowledge of their meanings and the places in which they may be used. One who says that *weight varies immensely as the square of the distance from the earth's center*, has a vague idea of some word beginning with *i* and ending with *ly*, which was used in that statement, but he has failed to become familiar with the meaning of the word. Likewise one who writes that tobacco creates a craving for some drink *more emphatic than water*, knows that *more emphatic* conveys the idea of *stronger*, and thinks that it gives added emphasis to his expression to substitute it. A careful study would show him at once that these expressions could not here be interchanged. The student should have accurate knowledge of all words which he attempts to use.

The combination of words into sentences needs attention on the part of many students. Some of the most common errors in combination are,—

1. The use of a singular verb with a plural subject; as, *they was*. The plural verb with a singular subject also occurs occasionally; as, *I are*.

2. The wrong use of tenses; as, I *seen* him; he *done* it.

3. The use of the wrong verb, as *learn* for *teach*; *sit* for *set*; *lay* for *lie*, etc. One needs to know of such verbs, their principal parts, whether they are transitive or intransitive, and their exact meaning. To illustrate, *sit* is intransitive, *set* transitive; we set the glass on the stand, but we sit upon a chair. *Learn* means to acquire knowledge by the act of the learner; it is purely subjective in its signification. *Teach*, on the other hand, means to impart instruction to another, and is objective in its signification. The instructor teaches; the pupil learns.

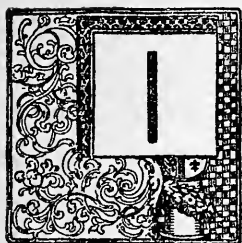
Another quite common error in the use of verbs is the substitution of one verb for another when they have a similar pronunciation. *Affect* and *effect* are frequently interchanged on this account. A knowledge of the meaning of such words, as derived from their composition, at once relieves the student from all difficulty in using them. *Affect* is composed of *ad*, meaning to, and *fect*, the root of the Latin verb meaning *to make*; hence its meaning, to make to, or influence, as the weather *affects* our plans. *Effect* is composed of *ex*, meaning out, and *fect*, and consequently means to make from or cause, as a change in the weather *effects* a change in our plans. In other words, *affect* denotes result, *effect*, cause.

4. The use of the wrong connective, as *and* for *to*. I will try *and* go, for I will try *to* go.

Most grammars contain ample directions for the combination of words into sentences, and the subject is treated quite fully in the outline text on Grammar and Analysis. Every scholar must be a careful student of language. When in doubt as to the use of a word, consult the dictionary.

ORIGIN AND DEVELOPMENT OF THE ENGLISH LANGUAGE.

(An introduction to the work in Grammar and Analysis.)



IN the English language of to-day we look upon a structure the framework of which was erected by the people of an age long since past, and which has been gradually built in and added to by nations since then, until now it stands complete in its diversity.

The earliest inhabitants of the British Isles belonged to the Celtic race. They were savages, who had no cities or laws, and resented any invasion of their territory. From 55 B. C., to the end of the fourth century A. D., part of their country was under the dominion of the Romans, who sought to introduce their own language and customs. As soon, however, as the latter were forced to turn their attention elsewhere, the Celts wiped out every trace of civilization left by their conquerors, and returned to barbarism.

In the fifth and sixth centuries piratical adventurers from Jutland and the coasts of the Baltic entered Britain, and took possession of the territory formerly occupied by the Romans. These Saxon, or Teutonic, invaders were stronger and hardier than the conquered Celts, and according to the inevitable law of the absorption of the weaker in the stronger, the latter gradually disappeared. The Celtic language influenced that of the conquerors very little, owing to the constant hostility and lack of intercourse between the two peoples. A few words, such as

bard, *druid*, etc., are the only traces in our language of the savage Celtic element, and these words are mostly those pertaining to objects or institutions peculiar to the Celts. We have for the framework of the English language the Anglo-Saxon, spoken by these hardy Teutons; a language which, like the people who used it, was of strong vitality.

At this time of the Teuton invasion, begins what is known as the Anglo-Saxon period, during which, in spite of a few modifications, the language remains practically the same. At the opening of the seventh century the introduction of Christianity into Britain brought with it the study of Latin and Greek. The monks and churchmen were the students of these languages, and derived from them words pertaining to the church customs and offices. Thus we have such words as *priest*, *bishop*, *clerk*, from Latin, and *church*, *alms*, from Greek. About 140 words were adopted from the Latin before the end of the Anglo-Saxon period, e. g., *street*, from *strata via*, *paved road*; *mile* from *mille passus*, 1,000 paces; and the names of the months of the year.

During the ninth century Scandinavian rovers entered Britain, and formed permanent settlements on the eastern coast of England. Gradually they became masters of the whole country, but did not attempt to perpetuate their own language — even allowed the Anglo-Saxon to be used in public acts and laws. Some of their words still remain, as *call*, *screech*, *grime*, *ransack*; but though the extent of their influence is uncertain, it is probably very slight.

While these Scandinavians were settling in England, others were making their homes in the northern part of France, and because they were Northmen, or Normans,

their province was called Normandy. They too adopted the language of the people among whom they lived, and thus a peculiar Norman-French dialect arose. The influence of this dialect began to be felt in England during the reign of Edward the Confessor, who had been brought up in Normandy, and filled his court with friends he had made there. At his death Duke William of Normandy laid claim to the English throne, and in 1066 he conquered Harold, the Saxon leader, and set up his court in triumph. This battle of Hastings was one of the world's most important and decisive battles, for by it the introduction into our language of the smoother French or Latin element was effected. It marks the close of the Anglo-Saxon period, and ushers in the Norman period, when culture and refinement were brought among those who were illiterate and without social discipline.

It is a very suggestive and inspiring fact that our language is a combination of those of the Latins and the Teutons,—the two races which have had most to do in determining the fate of the world. Both elements are united in one harmonious whole by reason of the same pronunciation.

For three centuries, however, there was no intercourse between the two peoples. The Saxons were not exterminated, nor driven from the country, but were simply left to themselves. The court, nobility, gentry, clergy, and army all spoke French, and French was also taught in the schools. There was no large class of common people whose station would compel them to mingle with the despised Saxons. “There was little attempt on the part of king or of court to understand the language of the subjects; the nobles, under the system of feudalism, needed

not to talk with those whom they oppressed, the churchmen were satisfied with their ecclesiastical benefices without understanding the confessions of humble worshipers; and the military forces, trained to consider themselves as men placed on guard against the discontented and dangerous Englishmen, did not seek their companionship."

Such was the state of affairs for three centuries after the Norman conquest. Then all classes of people were united by a common interest in the foreign wars of England, and the languages began rapidly to coalesce. This was in the fourteenth century. Since then our English language has been increasing its vocabulary, and more thoroughly blending its component elements.

The fusion is not yet complete, however; borrowed words have peculiar characteristics even to the uneducated. In general, Saxon words are simple, homely, and substantial, used for everyday events and natural feelings; French and Latin words are elegant, dignified, and artificial, used for conceptions of disciplined thought.

Our present vocabulary may be divided into two nearly equal parts; one of them consists of Anglo-Saxon words, and the other of words taken from other languages. In the latter class four-fifths of the words are of Latin or French origin, and some are derived from the Greek. About one-twentieth of all our words come from the other nations with whom we have come in contact.

The language is not yet spoken with absolute uniformity. Some words will always be needed to express peculiarly American things, but our constant and continued intercourse with England, besides the universal habit of reading, will keep the language reasonably uniform, and give one common language to literature.

GENERAL HISTORY NOTES.



THE subject of history is man. . . . To describe the earth, . . . to delineate the different kingdoms of nature, . . . or to explain the physical or mental constitution of human beings, is no part of the office of history. But history . . . is more. . . . It aims to point out the connection of events with one another. It seeks to explain the causes and the consequences of things. . . . It would trace the steps that mark the progress of the race. . . . The rise and progress of *culture* and *civilization* . . . is the theme of history."

"That there is, in some sense, a reign of law in the succession of human events, is a conviction warranted by observed facts, as well as inspired by religion. . . . There are laws of historical progress which have their root in the characteristics of human nature. Ends are wrought out which bear on them evident marks of design. . . . To discern the plan of history, and the causes or laws through which it is accomplished, . . . is the object of what is called the philosophy of history."

The student should under no circumstances neglect to make constant use of geography in connection with his study of history. The *location* of states, cities, rivers, mountains, and other geographical features which constitute the setting of history is an essential element of study.

Cæsar's *crossing the Rubicon* is a vague, shadowy idea, —here, there, nowhere,—floating, as it were, in the air,

until one pins it down by finding the river on the map. Then it stays where it is found, and is always at hand when wanted. A similar thing might be said about dates. Geography and chronology are truly called the eyes of history. The mind is so constituted that it is impossible to think satisfactorily of any event without locating it both in time and space,—without knowing its *when* and its *where*.

One of the most effective ways of teaching history to young pupils is the telling of history stories. They should be *told* not *read*. Let them be short and very definite. They may be taken from the history of any country and without regard to chronological order. Children will be most interested in biographical stories, in which important truths or principles are treated incidentally. The material for these stories may be found in any good histories. But there are many excellent books of history stories: for example,—Guerber's *Story of the Great Republic*. Pupils in the sixth and higher grades should be asked to reproduce the stories orally or in writing or both.

In the year 1799, a French military engineer while throwing up intrenchments near Rosetta, at one of the mouths of the Nile, found a slab of stone having curious characters engraved on its surface. This was the famous Rosetta Stone which is now in the British Museum. An examination by scientists resulted in the astounding discovery that this stone was the key to the libraries and the history of ancient Egypt. The inscription was over 2,000 years old and was written in three languages; the *hieroglyphic*, or picture, language; the *demotic*, or people's, language; and the *Greek*. The Greek inscription, which

was easily read, was a translation of the other two, and it thus furnished a clue to the meaning of their characters, which represented objects, abstract ideas, and sounds. The archæological value of this discovery can hardly be estimated.

Egypt is now tributary to Turkey. The government is an absolute monarchy, the head of which is a khedive or viceroy. It became evident in 1881 that Egypt would not be able to pay its English creditors, whereupon the country was occupied by an English army, under whose protection the revenues are collected and applied in part to the extinguishment of the debt to England. Great Britain announces her purpose to retire as soon as Egypt is able to maintain a strong government.

The government of China is patriarchal, being based on the government of the family. The emperor is regarded as the father of his people, and he exercises supreme paternal authority. The present emperor is Kwangsu. He is twenty-eight years of age, and has reigned since 1889. He has favored the introduction into the empire of whatever is most valuable in European civilization. His aunt, Tsu-Hsi, the dowager empress, is bitterly opposed to foreign innovations. When the emperor undertook to carry out his projects for educational and industrial reform, Tsu-Hsi obtained from him (1898) an edict whereby he resigned all power into her hands. It is generally understood that the emperor acted, in this matter, under compulsion. There is in China an influential and numerous anti-foreign party, of which the dowager empress is the head. This party favors the exclusion of all foreigners,

and has unquestionably given secret encouragement to the *Boxers*, whose cry is, *Kill the foreign devils*. The prejudice in China against Europeans is due partly to ignorance and superstition, and partly to the unjustifiable acts of Europeans themselves. Several of the nations of Europe—notably Russia, Germany, Great Britain, and France—have, upon various pretexts, seized valuable Chinese ports and territory, compelling China to cede or lease them for terms of years. The government of the United States stands alone in disclaiming any intention of acquiring any Chinese territory. This country is, however, an active competitor for the trade of China. American diplomacy and American policy as related to China have placed the United States in the lead in the dealings of the world with China, and America bids fair to obtain her share of Chinese trade.



COMMERCE OF THE UNITED STATES.

(Study in connection with Geography.)



UT few have any realization of the present extent of our industries, and especially of their rapid growth during the last ten years. The Hon. Carrol D. Wright, United States Commissioner of Labor, in an article in the *Century Magazine* for July, 1900, gave an array of facts and figures, gleaned from the latest government reports, which certainly ought to be a source of satisfaction to every American citizen.

According to Mr. Wright, the most careful estimates of manufactures in this country for 1900 placed the value at $12\frac{1}{2}$ billion dollars, which is at least 450 million more than the combined manufactures of the United Kingdom and Germany, our two greatest competitors. The United States employs the greatest number of persons in agriculture of any of the great countries, except Austria. An ordinary farm-hand in the United States raises as much grain as three in England, four in France, five in Germany, or six in Austria. The United States produces 350 bushels of grain per capita, the United Kingdom 119, France 98, Germany 75, and Austria 64.

While there is not such a variation in manufactured products, in the employment of machinery the United States leads all other nations. In this respect Great Britain ranks second, Germany third, and France fourth.

The exports of the United States to the principal countries with which she carries on commerce have increased as follows,— the figures represent millions of dollars.

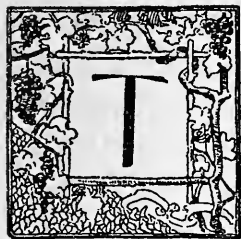
EXPORTS FROM THE UNITED STATES TO THE PRINCIPAL
COUNTRIES FOR YEARS NAMED ENDING JUNE 30.

Country.	1870.	1880.	1890.	1899.
United Kingdom.....	244	455	445	506
Germany.....	42	57	85	154
France.....	46	99	49	60
China.....	4	1	3	15
Japan.....	552 thous	3	5	17
Italy.....	6	12	13	25
British North America	21	28	39	83

During the same period our imports from Great Britain and British North America have decreased, while from the other countries there has been an increase nearly proportional to that of our exports to the same countries, but the balance of trade is now in our favor except with China and Japan. The most marked development has been in the East and that part of the world known as Oceanica. Our export trade with all Asia and Oceanica has increased from \$27,000,000 in 1870 to \$104,000,000 for the current year, this last amount being the result of the most careful estimates. In this trade, China, Japan, Austria, Russia, British Australasia, and Hawaii are our best customers. The greatest gains have been made in the following products: Agricultural implements, animals, breadstuffs, coal, cotton, machinery, meat and dairy products, and steel rails. All this shows that when our American goods become known they are appreciated, and that the skill of the American workman is making his products known and creating a universal demand for them.

BEGINNING OF THE ENGLISH REFORMATION.

(To be studied in connection with the early history of the United States.)



THE relation between American and English history is so close that one can not be understood without a knowledge of the other. This is particularly true of the early period of American history, as the first English settlements were made under a stress of circumstances in England, which practically compelled them to be made at the beginning of the seventeenth century.

The England of the sixteenth century is the England of the Tudors, that family which built up and maintained the supremacy of the sovereign which came to its full stature in the next century of the Stuarts.

The opening years of the sixteenth century saw the reign of Henry VIII usher in a new epoch. This was marked by new modes of government, new laws, new geographical discoveries, new learning, new art, and, in its effects upon our country most important of all, new religious movements.

Henry VIII came to his kingly inheritance when he was but eighteen years old. The country was fairly prosperous, and at peace, and the young king had the advantages of personal beauty, good education, and a winning address: these gained friends for him at every turn. He was avowedly the friend of the new learning, and Colet, Erasmus, and Sir Thomas More were upheld and encouraged by the personal friendship and open support which Henry gave them. These men were the great leaders in the work of bringing the Scriptures into such a form that

they could be studied as a whole, and their work gave a great impetus to the study of the Bible, and helped forward the Reformation in England. Luther's vigorous denunciations of the Romish church, ushering in the Reformation on the continent, were not received with favor by Henry VIII. On the contrary, so ardent a Catholic was he that his title of *Defender of the Faith* was bestowed upon him by the Pope as a reward for a book answering Luther's charges against the church. But Henry was ruled far more by personal design than by principle. When his childless marriage with Catherine of Aragon proved distasteful to him, he sought from the Pope a divorce to annul the marriage on the ground of illegality. The Pope, being under the power of Charles V, the queen's nephew, refused to grant the divorce, and delays occurred. Cardinal Wolsey had lent his aid toward getting the divorce from Catherine, but when he discovered that Henry planned to marry Anne Boleyn instead of a princess of France, he weakened in his efforts. The next attempt at settling the question was the convening of the court at Blackfriars. The court, consisting of Wolsey and an Italian cardinal as papal legates, failed to come to any decision. Henry came to the conclusion that Wolsey had played him false, and the riches, power, and pomp of Wolsey vanished as in a breath. On his way to London to answer to a charge of high treason, he died. Cranmer, of Cambridge university, suggested to the king that he lay the divorce question before the universities of Europe. Henry caught eagerly at the suggestion.

Several of the universities returned favorable answers, and, by the judicious use of bribes and threats, the king brought such as Oxford and Cambridge to see the matter

in the light he desired. The clergy now declared Henry to be the supreme head on earth of the Church of England. Thus the ties which had bound England to Rome were severed through one man's passion, and the Reformation came into England. True, it came through a side door, but it came, and, being in, worked.

The story of the progress of the movement during the remainder of Henry's reign is simply a story of the conflicts which arose between the king, who was now pope in spirit, and those who ventured to oppose him. Wolsey had fallen, Sir Thomas More and the aged Bishop Fisher headed the long list of those who suffered death in defense of their opinions. The monasteries were suppressed, their property confiscated, and the king's will became more and more absolute. However, with all his faults and inconsistencies, it must be remembered that Henry guided England with energy and success through a most trying crisis. In Germany the Reformation was the cause of long and bloody wars before it could be established where the people desired it. In France and Spain the kings suppressed it altogether. But in England the very fact that Henry took the middle ground of burning as heretics those who declared their belief in Protestantism, and hanging as traitors those who acknowledged the authority of the Pope, prevented a civil outbreak, and gave opportunity for the principles of the new thought to take firm root in the hearts of the people.

Henry was succeeded by Edward VI, who took the next great step, and made the church Protestant in doctrine. Mary, his eldest sister, was an ardent Catholic, and upon her accession to the throne, led a reaction in favor of Romanism. The universal horror in which her

name has been held was inspired by such cruelty as springs from bigotry; and her reign bears the marks of the atrocities common during this century upon the continent. But every heretic that she burned made at least a hundred more, and when Elizabeth came to the throne, the people hailed the reinstated Protestant form of worship. The real value of this change, which proved to be a permanent one, was the opportunity given to the freer play of thought and inquiry, and the resulting growth of the Puritan idea. Elizabeth was far more interested in other questions, and, as she had no deep and abiding religious convictions to defend, the people were left more than ever before to the natural development of their religious inclinations. As a result we find the Puritans demanding that the national church be purified from all Romish forms and doctrines. This first demand alarmed the government, and severe laws were passed, requiring the Catholics and Puritans to conform to the Church of England. Persecution bore its fruit, and the Puritan movement, resulting in the settlement of Massachusetts, was fully launched.



THE PERIOD OF UNCERTAINTY.

(To be read in connection with Constitution of U. S.)



THE years from 1776 to 1789 have well been termed the period of uncertainty. Foreign statesmen prophesied the early dismemberment of the American Union. The wisest men in the growing government came to see more and more clearly the need for stronger bonds of union, with united action and a closer agreement upon matters of policy essential to national existence. It was becoming apparent that as a nation our country must be prepared to take front rank among leading nations. To do so, strong executive powers must be centralized, and there must be provision for securing the prompt and certain support of every state.

Of the convention which framed the constitution, much has been written. A halo of interest surrounds the leaders of political thought in those times. The ablest and most experienced men from nearly all the different states were assembled to devise means whereby a representative government might be placed upon the firm basis of enduring prosperity. As famous leaders among the fifty-five eminent men gathered for that purpose, Washington, Madison, Franklin, and Hamilton may be named. Jefferson, who was greatly interested in the success of the convention, was in Paris, our minister to France. A number of prominent men chosen as delegates failed to attend the convention, many of them being opposed to its purpose or doubtful of its final success.

A careful study of the many concessions and com-

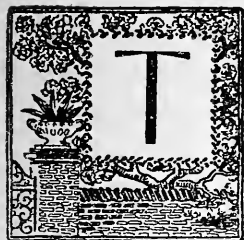
promises that were made to secure adoption by the convention, and also to render ratification by the required number of states the more probable, throws much light upon the meaning to be given to the different provisions of the constitution. The desire of the small states to retain equal representation with the large states, and the conflicting interests between the commercial and the planting states, caused the more important of these differences, which happily were successfully overcome by the patriotism and high-minded consideration of the members of the convention.

As a safeguard against the usurpation of power, a danger emphasized by numerous precedents in other countries, the constitution created a tribunal of final resort, formed so as to leave its members as free as possible from improper influence. The supreme court determines whether a law passed by the law-making power is within the province of such body to enact, whether it has been legally enacted, and also decides as to the application and intent of such law,—in effect, determines its constitutionality, and, if constitutional, interprets its meaning.

Good fortune seems to have accompanied the constitution. Its adoption by New York in spite of strenuous opposition, the success attending the government immediately after 1789, and the fact that the constitution has proved equal to every contingency that has arisen, all these attest the wisdom of its makers. Every line of it is as operative and as binding to-day as it was when the government was first set in motion by its provisions, and no part of it can fall into neglect or decay while the government continues to exist.

THE DAILY PROGRAM.

(To be studied in connection with Pedagogics and Methods.)



THE rural school presents several conditions different from those found in the city school. These are the relatively shorter school year; the greater number of grades and classes to a room; the uneven attainments of the pupils in the same class; the greater irregularity of attendance; and often the lack of suitable appliances for school work. These problems the successful teacher must meet and solve in a practical way.

The adjustment of the work of the school to the six hours constituting a school day is by far the most difficult and important problem which the teacher of the average country school has to solve. It must be remembered that time is precious to these pupils, as their opportunities for attending school are limited. It follows that all the time at the disposal of the school should be used wisely, and this calls for a most carefully arranged program. This program should direct *the study* as well as the recitation. Much time is lost by the average pupil for lack of such direction. He spends too much time on those subjects which appeal to his fancy, or uses more time than is necessary to master a lesson, and in so doing, acquires a listless habit of studying. A good study program systematizes the work of each pupil, properly apportions the time to the various grades and studies, and enables the school to accomplish much more work during the term than is possible without such an arrangement.

Before such a program can be made, the school must

be permanently classified. Unless a classification register has been kept, this may require the first four or five days. In making this classification great care should be taken to avoid *putting pupils back*, as this often so discourages a pupil as to affect his work for the entire term. It is safe for any teacher to assume that the work of her predecessor is to be accepted until tests finally demonstrate that it must be modified.

When the classification has been determined, the teacher should proceed to make the program. This should be neatly written in a good form and posted in some conspicuous place, where it can be consulted frequently.

The study program should provide for variety in work, allot the proper amount of time to the study of each lesson in each grade, and plan the hardest work at times when the pupils are least fatigued.

In the actual preparation of the program the teacher must consider first the time at his disposal. Custom seems to have established this at about two and three-quarters hours in each session. The recesses divide this into two nearly equal portions, the second being the shorter. The time, divided by the number of classes, will show the average time-length of the recitation. But of course all classes are not of equal importance, and the teacher must determine which are to be favored by longer periods for recitation. In determining this, the size of the class, the age of the pupils, and the importance of the study, must be taken into consideration. Other things being equal, short recitations go to young pupils and to small classes. If possible, a short period in each session should be given to singing or some enlivening exercise.

Next, the order of recitations should be determined, and here several principles are established. The younger pupils should recite early in the session, because they are less able to prepare their lessons in advance, and because they are then in better mood for work. So far as possible the recitations requiring keen attention and abstract reasoning should precede the less exacting ones. The same students should not be called upon to recite in consecutive periods if it is possible to avoid it. Young pupils should be given frequent periods of outdoor rest, and should be dismissed before the usual closing hour unless the weather be inclement or there are other good reasons for detaining them.

When the recitation program has been completed, the study periods should be arranged carefully so that each pupil may study at the time best suited to himself.

In the next number of the Aid a suggestive program with full explanations will be offered to our readers.



METHODS IN HYGIENE.



INSTRUCTION in hygiene with reference to the effects of stimulants and narcotics is made obligatory in nearly all states. Anatomy should not be taught to young children; they can not understand the subject, and its introduction often leads to a morbid sensitiveness.

The important work in the primary grades is to fix the leading points of hygiene, and inculcate moral strength to resist temptation. The following suggestions offer sufficient material for a term's work with the first three grades. The lessons for the third grade can be extended on the same topics given for the first and second grades, if the program will admit of no variation in this subject.

FIRST AND SECOND GRADES.

FIRST WEEK.

1. Touch and name parts of the head and face.
2. Have the pupils name the common articles of food, and tell as far as they can where they are obtained.

SECOND WEEK.

1. Touch and name parts of the trunk and limbs.
2. How food is prepared for use; meat, vegetables, bread, etc.

THIRD WEEK.

1. Touch and name parts of the arm and hand.
2. Continue the lesson on preparation of food. What makes food wholesome, etc.

FOURTH WEEK.

1. Touch and name parts of the leg and foot.
2. What we drink; water, milk, tea, coffee, etc. State what drinks are healthy and what are injurious.

FIFTH WEEK.

1. The skin and how to take care of it. Cleanliness, temperature.
2. Why we need food; to repair waste, for growth, for heat.

SIXTH WEEK.

1. Drinks that are not healthful.
2. Alcohol, whisky, beer, wine, etc.

Teach something of how these beverages are made, their effect in a limited extent only. They are not food; they do not give strength; they do not keep us warm.

SEVENTH WEEK.

1. Clothing; why we need it; what it is made from, how to care for it.
2. Tobacco; what it is, how used, why it is injurious.

EIGHTH WEEK.

1. How to keep well.
2. Exercise, pure air, proper food, and clothing.

NINTH WEEK.

1. Review parts of the body already studied.
2. Review foods.

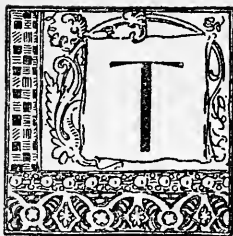
TENTH WEEK.

1. Review lessons on health and drinks.
2. Review alcoholics and tobacco.

Second grade can elaborate a little more fully on lessons pertaining to food, drinks, and health. In connection with lessons on food and drink, teach the necessity of self-denial. Try to impress upon the children the value of being able to say NO. These lessons can be combined with language work to some extent. Use stories when you can do so with effect.

THE FIRST READER.

(Study in connection with Theory and Art of Teaching.)



THE first reader is, in many respects, the most important book placed in the child's hands while he is at school. His first impression of this book, together with his consequent attitude toward it, makes or mars his progress in the succeeding terms.

The teacher should study the first reader carefully from beginning to end before attempting to use it in class. By this study she will first gain a knowledge of the general plan and purpose of the book, which will help in determining what should precede and what should follow it. If a reading chart is used, does the work of the chart lead up to the first lessons in the reader? If not, the teacher must prepare suitable blackboard lessons for this purpose. It should be the aim of the teacher to get the pupil ready to use the book as early as possible.

Do the lessons in the reader treat of subjects with which the child is familiar? If not, he must be prepared for them by the teacher.

Most first readers introduce new words too rapidly. Is this true of the one you are using? If so, supplement the book by suitable lessons on the blackboard. If the pupils can have only one first reader, the teacher will need to do a great deal of this sort of work.

Does your first reader lead by natural and gradual steps up to the second reader? Many first readers do not, and need to be supplemented. Every teacher should possess several first readers, and use them in providing additional lessons.

ATTRACTIVE COURSES.

A **First Grade** course of study is provided by our school in many states, in agreement with the legal requirements for certificates, in which the branches required for a first grade county certificate are included; also a **Second Grade** course, embracing the studies demanded for the certificate or certificates below the first grade. Each course is complete in eight numbers. Tuition, \$10.

An **Elective** course, 80 pages in each of its eight numbers, consists of Higher Algebra, Plane Geometry, Physical Geography, Botany, Zoology, Physics, General History, Literature, Educational Psychology, and Elementary Algebra. Of these the member selects not more than five, upon which to send manuscripts and receive estimates, with a view of securing a diploma for those five branches. Tuition, \$12.

The **Complete Practical Business** course, in twelve numbers, furnishes thorough and comprehensive training in practical bookkeeping. A complete knowledge of business papers and the actual handling of all the common business forms, is emphasized. In connection with each form of commercial paper the leading legal points are stated. An excellent drill is also given in commercial arithmetic, the use of English, and letter writing. This course gives complete instruction for the education of a practical bookkeeper and accountant. Tuition, \$20.

Write for a full descriptive announcement of twenty special courses for teachers.

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The Home Student's Aid



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SECOND
NUMBER



HOME STUDENT'S AID.

W. F. ROCHELEAU, EDITOR.

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HOME STUDENT'S AID



SUPPLEMENTING THE
OUTLINE TEXT OF THE
INTERSTATE SCHOOL
OF CORRESPONDENCE



ORIGINALITY IN EXPRESSION

Originality of expression has so many advantages, and they are so manifest, that their discussion may seem trite; however, to the teacher, to the student, and especially to the home student, the consideration of a subject of such fundamental importance may be profitable even though lacking in novelty.

Originality of expression compels practice in composition. Some benefit may be derived from speaking or writing that which has been memorized, but he who gets the thought of the writer and puts it into his own language profits more. The new version may not be worthy of comparison with the old, but he who profits by his mistakes and makes it a practice always to speak and write his best English, will find that his best improves. A good style of composition is not acquired without effort.

Originality gives uniformity of style. The writer who copies or learns word for word all he can find on his subject, filling in a little here and there with his own composition, has a conglomeration which makes conspicuous his own incompetency. Such a writer reminds

one of certain indiscreet persons whose unsightly hands would escape notice but for the jewelry thereon. Goldsmith calls attention to the contented peasant who —

“Sees no contiguous palace rear its head,
To shame the meanness of his humble shed.”

If your composition is as good as that quoted, why not use it? If not, why give the reader such a good opportunity to contrast it with that of a skilled writer? Surely it will suffer by the contrast.

Originality precludes the suspicion of plagiarism. When the critic observes that the composition is not original, he arrives at one of two opinions: either the student has committed the matter to memory or he has copied it outright. Other features of the paper indicate which opinion is correct, and the plagiarist is soon found out.

One teacher wrote the following as an original biography of Robinson Crusoe: —

“Robinson Crusoe, Biblical scholar and explorer of the Holy Land, was born at Southington, Connecticut. He graduated at Hamilton College, and was an instructor in Hebrew in Andover Theological Seminary. In 1837 he made a voyage to the Holy Land, returning to Berlin in 1838. The result of this journey was the great work entitled ‘Biblical Researches in Palestine, Mount Sinai, and Arabia Petræa,’ subsequently enlarged after a second visit to Palestine in 1852.”

A strange biography of our old friend Robinson Crusoe, was it not? She had copied the wrong article from the Encyclopedia.

The plagiarist deceives no one, with the possible

exception of himself. The good student who takes pains to commit to memory many rules, definitions, and principles is a careful student in other ways, while the plagiarist simply copies what he can find and must leave unanswered all questions that require careful, intelligent study and originality of expression.

What is plagiarism? The International Dictionary says it is to steal or purloin from the writings of another; to appropriate without due acknowledgment. A plagiarist, then, is a literary thief. The student should do the best he can always, bearing in mind that to the practiced mind, things do not seem to be what they are not.

Originality of expression favors memory. Enough energy is wasted in some of our schools in the improper study of history to make the pupils familiar with the leading facts: too often they study the words and not the facts. Memory depends upon attention, and he who puts the thought of the author into his own language must give more undivided attention than he who simply learns the words of the author.

Originality fosters a spirit of independence. The person who can grasp the essentials, see related truths, classify knowledge and store it away, has an incalculable advantage over the slave who must learn by heart, not only in the amount he can read, but in the ability to reproduce what he has read and to arrive at new truth by means of known, related truths.

Originality develops the art of definition. A definition may or may not give an adequate conception. It depends upon perspicuity and the few- or many-sidedness of the thing defined. A definition places that which is defined

in its appropriate class, and distinguishes it from all other members of that class. It is often easier to learn a definition than to make one, but the adult student should form his own definitions, for by so doing, not only does he get good mental discipline, but by being required to study the object in all its relations, he gets also a better conception of it.

An obtuse angle is often defined as one greater than a right angle; but the definition is not complete because the obtuse angle is not distinguished from the straight angle or the reflex angle, each of which is greater than a right angle. An obtuse angle is greater than a right angle and less than two right angles. A correct definition can not be made without knowing not only the attributes of the object itself, but those also of each member of its class.

To be original requires accurate, definite knowledge on the part of the student. To give a good description, the writer must think of that which he is describing and not of the words used by another. It does not follow that because of a good verbal memory the owner shall be renowned for wisdom. Many a youthful prodigy has disappointed his friends by not even rising to commonplace mediocrity. It is the student who grasps the truth and associates it with other truths who procures a practical education. One reason why a pupil so readily forgets is that the facts were never his, and the words of the author learned for the recitation were soon forgotten. No one can tell what he does not know.

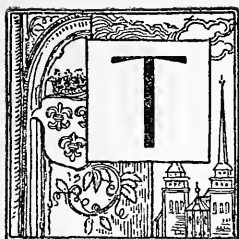
It is a source of gratification to a writer to know that the general outline and the composition of his paper are entirely his own. No one can send (for examination) manuscript which states facts presumably in the writer's

possession but really copied for the occasion, without surrendering some of the self-respect and self-esteem which every honest person must keep intact.

It requires effort to be original, and that is a strong point in its favor. The student grows by the effort he puts forth. Spasmodic activity gives no better results mentally than physically; but the patient plodder will surely excel in the end. To excel others may or may not be worthy of commendation, but to excel his former self, is every student's duty.

“The teacher should have an awakened perception of his own responsibility. His education should be thorough, scientific, technical. He should have ability to see the beginning and the end. He should know the road to be traveled and have a knowledge of the pitfalls and morasses along the way, and the side-tracks that lead to nowhere. He should have executive ability and tact. One who has not all the qualifications mentioned, but who has an abiding desire to make the children better and wiser by their association with him, a love for and sympathy with nature, and an appreciation of the value of a love of nature in the child's physical, mental, and moral development, may undertake its study as a learner with them.”—*New York Education*.

SPELLING.



THE English language is a combination of the Anglo - Saxon and the Norman French, and as neither of these languages was distinguished by regularity of spelling the mixture is a mass of confusion and anomaly. We meet with almost every conceivable combination of letters. The multitude of signs for the same sound and of sounds for the same sign make possible a great variety of arrangement. The result is a labyrinth, where even those who are familiar with its turns sometimes lose themselves.

Besides having many words of entirely different origin, we have words of the same origin modified by different outside forces. For example, some Latin words have come to us directly, while some have been softened by the smoother French pronunciation. The French sometimes dropped whole syllables after the accented syllable, and always divided harsh combinations of sounds. Some foreign words are anglicized in accent and spelling, and some are not; some are given Saxon prefixes which serve to make their spelling more doubtful and confusing.

The importance of correct spelling can hardly be over-estimated. It is a conventional test of accurate scholarship. It is brought into use in almost every kind of work, and its absence is not only annoying, but damaging to one's business and social prospects. Its presence is an indication of a cultivated and scholarly mind.

Some people learn without any apparent effort just how the letters should follow each other in a word, while others

go through life misspelling scores of our commonest words. The accomplishment, however, can be acquired by anyone who has perseverance and an earnest desire to be a good speller.

The sense which is most useful in aiding one to spell correctly is that of sight. The words are photographed on the memory, and repeated exposure of the negative serves to deepen and strengthen the impression. Some people pronounce the word and spell it with the letters which they think represent its sounds. But the majority of people think of a word in the form in which they *see* it printed, and when in doubt as to its orthography they write it, to see if it *looks* correct.

The best way to become an accurate speller, therefore, is to read much, to observe closely the forms of words, and to write frequently. To know the derivation of a word is often a key to its spelling. The best rule to follow in learning to spell is,—If you are not sure of a word, do not write it until you have looked it up in a dictionary.

It is not accordant with the practical spirit of the English people that their language should be so lawless. There is at present a strong movement on foot to simplify the orthography of the language. It aims to secure the adoption of the *phonetic* or *sound* method of spelling, that is, spelling by ear alone, ignoring etymology and analogy. The advocates of this method claim for it innumerable advantages over the present system. It has already been adopted by many schools and colleges, and is to a certain extent approved by the National Educational Association. Some of the most common amended spellings authorized by this latter institution are tho

(though), altho (although), thoro (thorough), thorofare, thru, thruout, catalog, program, etc. Everyone who uses the language is interested in the general adoption of simpler spelling. Teachers and others may promote the good work by always using the simpler when two spellings of a word are authorized. The words in the following list may be spelled as here given:—

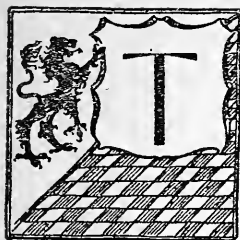
curtesy,	bedsted,
cosy,	gram,
gray,	hight,
cyclopedia,	pedler,
enrol,	skilful,
Eskimo,	somber,
esthetic	stedfast,
fiber,	traveler.

Whether or not the phonetic method will prevail, is uncertain; the ingrained habits of a people can not be changed suddenly. The surest progress in any reform is accomplished by gradual advances toward the desired end.

“The man who can utter one sentence which a boy will carry around in his head for thirty-seven years, and which will always be an inspiration to him, is a spell-binder of marvelous power. I humbly and fervently thank God for such men.”—Hon. Champ Clark.

THE BRITISH COLONIES.

(Read in connection with Geography.)



THE British Empire occupies the unique position of a government whose principal sources of strength and wealth are in its colonies. The United Kingdom of Great Britain and Ireland, while constituting the central government which directly or indirectly controls the affairs of the Empire, has an area of only 121,000 square miles, the remaining territory under the British flag being found in the colonies.

British colonies are found on every continent, in every sea, and in every clime. Some are mere military or naval strategic points, while others, like India, Australia, the Dominion of Canada, and the African possessions, constitute empires in themselves. Great Britain has been the most successful of all nations in governing her colonies, consequently, while the bond of union existing between the most important of these colonies and the central government is little more than sentiment, this sentiment constitutes a loyalty to the Crown stronger than could be formed or sustained by any system of laws.

Those colonies in the temperate regions have independent governments, and regulate their own affairs, even to systems of coinage and tariff. The Dominion of Canada is a typical illustration of most of these governments. The dominion government is modeled quite closely after that of the mother country, the Dominion consisting of a number of self-governing states designated

as provinces, each having its own governor and legislature for local affairs. The central government has two houses of parliament; a Senate and House of Commons. The Senate comprises 81 members appointed for life by the Crown, on advice of the Privy Council of Canada. The House of Commons consists of 213 members elected for five years by the people of the respective provinces. The chief executive power is vested in the Governor General appointed by the Crown. He is assisted by a ministry whose members constitute the heads of the various departments of government. He has power to dissolve Parliament on advice of the ministry. The present ministry consists of 13 members who, like those in the cabinet of the home government, have seats in the houses of Parliament, and hold office only so long as the government has the support of the majority of the House of Commons. There is also a Dominion Judiciary which constitutes a Supreme Court of appeal from all the provincial courts, though its decisions are subject to review by the Judicial Committee of the Queen's Privy Council in London.

The Australian colonies, seven in number, including Tasmania and New Zealand, have recently formed themselves into a federation known as "The Commonwealth of Australia," by the adoption of a constitution very closely resembling that of the United States, and placing the Commonwealth on a much more independent basis than the Dominion of Canada. The component parts of the federation are designated as states. The chief executive power is vested in a Governor General appointed by the Crown; and the legislative power in a Parliament of two houses, Senate and House of Representatives. The

members of the Senate are elected for six years, and those of the House for three years. The Senate is constituted on the basis of equal representation from the states, each state now having six senators; the House, on the basis of representation by population. The members of both houses are elected directly by the people. Parliament has extensive legislative powers, and the ministry is directly responsible to the House of Representatives.

The affairs of India are administered by a Secretary of State for India, who is a member of the British Cabinet, and is represented in Calcutta by a Governor General. This officer is usually known as the Viceroy of India, though there is no foundation for the title. The Governor General is assisted by a civil and military council in Calcutta. The supreme legislative authority is vested in the Governor General, who, for the purpose of framing laws, appoints a number of local advisers from the provinces, and these become additional members of the council.

For the purpose of local government the empire is divided into districts under governors or lieutenant-governors. Under this system the vast population of India is working out its own civilization under the immediate control of its native officials, who are in turn protected and advised by a few officers of foreign nationality. The striking feature of the government of India is the insignificant proportion of Europeans connected with it. It is estimated on good authority that no less than 97 per cent of the officials connected with the administration of the government are natives.

The Indian Empire has an area of 1,550,000 square miles, and a population of over 250,000,000. In wealth,

population, and commerce it is the most important of the British Colonies. The most valuable industry of India is agriculture, upon which more than 200,000,000 people depend for occupation and sustenance. Rice, wheat, tea, and opium are the principal agricultural products. The land is tilled by hand, and the people live in villages whence they go to work the neighboring fields. The caste system peculiar to the country is a barrier to moving, and the same families remain in one locality for generations.

The industry next in importance is manufacturing. Foreign capital has been employed in the erection of factories for the manufacture of cotton goods, and the products of jute and hemp, so that modern machinery is now competing in the production of textile fabrics, with the primitive methods but remarkable skill of the natives.

The railway and telegraph systems are well developed. All the larger cities, and many of the smaller ones, are connected, while the lines are so distributed as to reach all sections of the country.

The Commonwealth of Australia is a little larger than the United States, exclusive of Alaska. The size, form, and structure of Australia give it the rank of a continent, and it is now so recognized by all leading geographers. Its location gives it a climate, flora, and fauna peculiarly its own. Some species of trees have their leaves so turned as to present the edges in a vertical position, so they cast but very little shade. Other species rival the giant redwoods of California in size, while many others are noted for the medicinal qualities of their gums. Much valuable timber abounds in the forests, and the soil and climate of the open country are remarkably well

adapted to the raising of sheep. All kinds of tropical and semi-tropical fruits abound, and all the states are extensively engaged in agriculture. Wool constitutes the chief article of export, most of it going to England and the United States.

The mineral resources are extensive and valuable. Until the opening of the mines in South Africa, Australia was the leading country of the world in the production of gold, and, next to wool, gold has constituted the most valuable export. Coal is also found in large quantities and of good quality, but has not been extensively worked.

Railway communication is sufficient for the needs of the country, all the leading cities being connected by railway and telegraph lines. The entire country is prosperous and progressive, and constantly increasing in wealth and population.

The Dominion of Canada is our nearest neighbor on the north, and in extent exceeds the United States by several thousand square miles. The location is such as to give the country a varied climate, ranging from the mild temperature of the southern provinces to the severe cold of the far north. As the Dominion is crossed by both of the great continental mountain systems, it has highlands in its eastern and western sections. Between these is a continuation of the Great Central Plain found in the United States. Most of the Height of Land which crosses this is in the Dominion. This plain is well watered by the Mackenzie and Saskatchewan-Nelson river systems. The broad estuary of the St. Lawrence furnishes an outlet for the Great Lakes, a portion of which belong to the Dominion. The country is thus well

supplied with lakes and rivers, many of which are navigable for large vessels.

The industries and products of the different provinces vary with location, climate, and soil. Extensive forests cover a portion of most of the provinces, and these form the basis of a large lumber industry, second in importance to agriculture only. The coast provinces, particularly Nova Scotia and British Columbia, are extensively engaged in fisheries. Ontario is noted for its fruit, and Manitoba and the districts to the north and west for the excellent quality of their wheat. They also produce large crops of oats and barley. Live stock and dairy products also constitute valuable exports. Canada is one of the leading countries of the world in the production of cheese.

The mineral resources are considerable. Coal is extensively mined in Nova Scotia, and lignite occurs in the open country to the north and west of Hudson Bay. The gold mines of the Klondike are proving to be valuable, and the largest nickel mines in the world are located at Sudbury, Ont. Iron and copper are also found in various localities.

Canada is particularly favored with inland water ways. By a recent deepening of the St. Lawrence canals, vessels drawing fourteen feet of water can pass from the lakes to the ocean without unloading. In all, the Dominion has 166 different railways. The Canadian Pacific and Grand Trunk systems are by far the most important. The first extends from the Atlantic to the Pacific, and has more than 6,000 miles of tracks. The Grand Trunk has a network of branches which covers the eastern provinces and extends to Portland, Me., for its Atlantic terminus.

An extensive commerce is carried on between the Canadian provinces and the United States. Canada exports to this country raw material, like lumber, hides, etc., and imports manufactured goods. The present tariff system undoubtedly restricts this traffic to quite an extent.

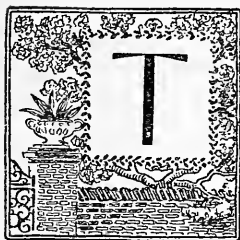
The British possessions in Africa, excepting Cape Colony and Sierra Leone, may be said to be in a formative condition. According to local divisions they are twenty-three in number, but can all be included in the two named above and British South Africa, British Central Africa, British East Africa, the Soudan, and island possessions. The combined area of these possessions is 2,760,000 square miles, and their population about 30,000,000, or 50,000,000 including Egypt.

The strongest and most important of the colonies are in the south, and have Cape Colony as their center of government. British South Africa extends inland to Lake Tanganyika, a distance of 1,800 miles. The country is well supplied with minerals, timber, and fertile land. It is quite densely populated by native races, the majority of which are intelligent and susceptible to the influences of civilization. Railway lines already connect the most important towns, and these and telegraph lines are being rapidly extended. With the rapid growth in commerce now promised, the British colonies in Africa will in the near future become important centers of trade.

“The home is the college of the future. The necessity of education in these days has made this so; everybody who can not boast of a fortune, and those who can, have learned by example to like the college in the home. Any course can now be had in this way.”—*The Literary Light*.

THE FRENCH IN AMERICA.

(Read in connection with History of the United States.)



THE effect of the early French explorations and settlements upon American history is inadequately treated by the ordinary text-book, and consequently not fully realized by us as a people.

Nearly a century before the English attempted a settlement in the New World, the French, following the lead of the St. Lawrence, had penetrated hundreds of miles into the interior of the continent. While Cartier's expedition led to no immediate results, it was the means of calling attention to the wonderful land which the French afterward possessed. Long before settlements in America were considered possible, the French were actively engaged in the fisheries off the Grand Banks, and the income from this industry became a source of wealth to the large number of people engaged.

Through these and other means the French were gradually led to the continent. Their entrance was by a fortunate route; no mountain-barrier obstructed their progress, and before the Puritan had set foot upon New England soil they were cognizant of the vast expanse of rich country and the great chain of lakes in the interior.

Two classes of Frenchmen were engaged in this pioneer work. The motives of each were far different; the object of the merchant was traffic and wealth, while that of the missionary was the conversion of a savage people to the religion of the Cross. Still, these classes worked together in remarkable harmony. Sometimes the priest was the

pioneer, and at others the trader was the first to explore the land, while occasionally, as in the case of the remarkable journey of Marquette and Joliet, they went together. In all instances they won the confidence of the Indians and obtained a foothold in the country.

The versatile character of the Frenchman especially fitted him for this pioneer life. His hardy constitution enabled him to endure the privations and hardships consequent upon the long journeys. The readiness with which he could adapt himself to the ways of Indian life enabled him to gain the confidence and love of the Red man. His roving dispositions made it easy for him to follow the native tribes in their wanderings. Consequently many French traders married Indian wives and became members of the tribes to which the women belonged.

The missionaries by their unselfish devotion and untiring zeal won the affection of the people, though this required many years of hardship and patient labor. As a result of these influences during the century and a half preceding the French and Indian War, the Indians had become the firm friends and allies of the French.

This alliance embraced all the tribes from the coast of Maine to Lake Superior and down the Mississippi valley as far as the Ohio. These nations occupied the most desirable portions of Canada and what now constitutes the Central States. They numbered their warriors by the thousands, and when united under French leadership became a powerful menace to the English settlements.

There was one noted exception to this alliance. The nations joined with the French were members of the great

Algonquin and Huron families. In the midst of the Algonquins lay the land of the Iroquois. Such was its unique position that Parkman likens it unto an island surrounded by the country of a foreign nation instead of water. The Iroquois, commonly known as the Five Nations, occupied that portion of New York lying between Niagara and the Hudson, comprising the beautiful lake region of the central and western part of the state. It constituted at once the most powerful, best organized, and most intelligent Indian confederation found in America, not excepting even the Aztecs and Incas.

Between the Iroquois and Hurons there was a deadly feud of such long-standing that the traditions of the oldest men could not account for its origin. Since the French occupied the country of the Hurons, nothing was more natural than that the latter should receive first French sympathy and then French aid in this struggle. So Champlain starts out with a few followers to help the Hurons.

Champlain's attack upon the Iroquois was a fatal mistake. By it was incurred the suspicion and hatred of this powerful people, who were so located as to prevent the French from occupying the valleys of the Mohawk and Hudson, thus excluding them from important strategic points, and preventing their forming a line of communication to the west of the New England colonies. Furthermore, while the Iroquois were altogether too shrewd to give their undivided alliance to the English on all occasions, they occupied such a position at the time of the final struggle between the French and the English for possession of the continent, that they held the balance of power. This they were induced to wield in favor of the English, and with this assistance the English won. Had

the Iroquois allied themselves with the French in this war the result must have been far different. When we recall the disasters that befell the English during the first few years of the war, and consider that European complications compelled the king of France to abandon his American colonies to their own resources toward the end of the struggle, we have good reason to regard the part which the Iroquois took in this controversy as providential.

The French had gained by exploration and actual occupation all of Canada and the central portion of the United States. This claim they proceeded to fortify by the best means at their disposal. Yet, such was the roving tendency of the settlers, that they had no desire to build up homes, till the soil, and develop the resources of the land which they possessed. Had they retained control of the country, centuries might have elapsed before its riches would have been used for the welfare of the race. The neglect of their opportunities and the sort of life that they lived were largely responsible for the failure of the French to sustain themselves in their long struggle with the English. The latter were a people of homes and industry. They had husbanded the resources of the land, and these were their source of supply in the time of need. While an English army under Wolfe, by its remarkable victory, shortened the struggle, it is certain that the English colonies would have won in the end had they been, like the French, left to carry on the war by themselves.

The battle of Quebec was the Hastings of America. As the victory of 1066 determined the destiny of the English-speaking race in the Old World, so did that of 1759 determine its destiny in the New. The surrender

of Quebec meant that America was to be the land of the Anglo-Saxons and subject to their civilization and progress. It also meant that it was to be the land of Luther and not of the Pope; the land of free schools, free thought, and free speech.

The victory at Quebec was the death blow to monarchy in America. The English people were the originators of representative government and have always been its staunch supporters. It was the natural sequence that the English colonies should excel the mother country in bringing this system of government to its highest degree of perfection. This, the result of the French and Indian war enabled them to do years before it could have been accomplished otherwise.

We are indebted to the French for the first knowledge of the vast extent and inexhaustible resources of the interior of our country. We are also indebted to them for the preservation of many of the original names of its lands and waters. Their influence in American affairs was powerful during the seventeenth century, but their hold on the country was based on an insecure foundation, and when the time of trial came they were unable to maintain it.

We are indebted to the Iroquois for a country preserved through their fidelity to their English friends; and when we hear thoughtless people revile the Indian, we should remember that, had it not been for the great confederation of the Five Nations, it is quite possible there would not have been a United States.

SOME INHABITANTS OF STAGNANT WATER.

(Read in connection with Zoology.)



DROP of stagnant water placed under the microscope becomes a tiny world in which myriads of beings live, move, reproduce their kind, and die. These minute organisms vary in form, color, and structure from the jelly-like and shapeless *amœba* to the more complex and perfected structures of the crustaceans.

A careful study of these little creatures shows that many of them contain prototypes of organs which reach perfection in the higher orders of the animal kingdom. Among the inhabitants of our drop of water rudimentary feet, stomachs, brains, eyes, etc., appear. Not that these are all found on a single individual, but they are distributed among the various species.

Many of these specimens are objects of beauty, and are more delicate in their structure than the most exquisite flowers. Such are the *vorticellæ* or bell animalculæ, so called from their resemblance to a bell-shaped cup. They are transparent and usually colorless. Each little animal has a row of short, stiff hairs, called *cilia*, arranged around a funnel-shaped structure, which serves as both mouth and stomach. By a fanning motion of the *cilia* the animal produces a whirling motion in the water, which creates a tiny whirlpool or vortex having its center at the funnel. This vortex catches and draws into the funnel any particles of food which come within the current created by the *cilia*. It is from this peculiarity

that this class of animalculæ receives the name vorticellæ. Most of them are attached to some object by a stem. Six hundred of them laid side by side would, if full grown, extend across a space an inch in diameter.

Another interesting species lives in a transparent crystal vase, which seems to serve the purpose of a covering and a shield. The animalcule is attached to the bottom of the vase by an arrangement which enables it to coil itself up within the shield, or to extend its body beyond the top of the cup to procure food.

The stentor, or trumpet animalcule is another common inhabitant of stagnant water, and is a very interesting specimen. It takes its name from its shape, which closely resembles that of the flower of the trumpet honeysuckle. The slipper animalcule is also frequently met in water containing the decaying animal or vegetable matter upon which it thrives. It is larger than those already described, and can sometimes be detected as a tiny white speck moving about in the water. When magnified it resembles an old slipper run down at the heel. The mouth is located at what in the slipper would be the opening for the foot.

The rotifers, or wheel bearers, constitute another large class which is very common. These are so named from circles of cilia which by their peculiar motion seem to constitute revolving wheels. The common rotifer is found in nearly all standing water, but there are other and more beautiful species which are quite rare. One peculiarity of rotifers is their tenacity of life. If a rotifer dries up and even falls to pieces, the powder thus formed will, when again placed in water, produce an abundant crop of rotifers.

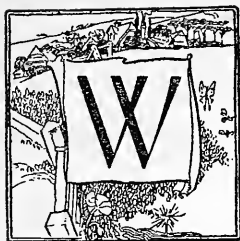
The rotifers are of a more complex structure than the other animalculæ mentioned in this article. In them we find the first rudimentary mouth with teeth, and the first appearance of a genuine leg with a foot. The curious thing about this is that the little animalcule has but one leg, and presents a very grotesque appearance in its efforts to hobble about on it.

The crustaceans are another class of still higher order. Some of these have bivalve shells and antennæ and feet. Among them are the fairy shrimp, which is easily recognized, being sometimes an inch in length and of a beautiful pearl and pink color. The shrimps live in cool water, and are found only in spring and autumn.

The cyclops, known as "The One-Eyed Giant of the Mill Pond," is another common form. It takes its name from its one red eye in the middle of the forehead, which gives it a certain resemblance to the fabled monster of the Greeks. Cyclops exist by millions; they furnish the food of the smaller fishes and larvæ, and thus serve a very useful purpose in the economy of nature.

This brief account mentions only a few of the interesting forms. These and many others can easily be found and studied by anyone having access to a compound microscope. Material can be supplied from a jar of water in which plants are kept growing, or hay or other vegetable matter is allowed to decay. Those interested in making an extended study of this branch of the animal kingdom are recommended to procure "In Brook and Bayou," by Clara Kern Bayliss, which gives an excellent treatment of the subject.

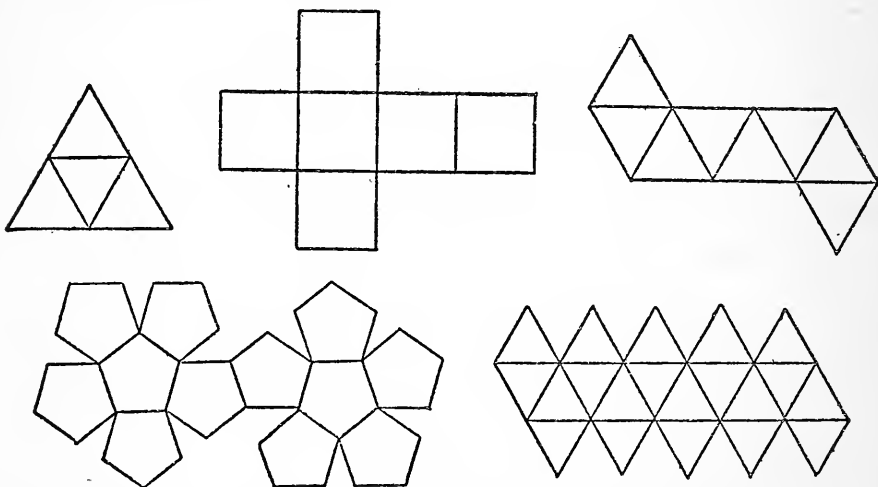
RECREATIONS IN GEOMETRY.



WHILE to the beginner geometry may seem a collection of dry facts, yet there are many simple and beneficial exercises and problems which assist the memory and add interest to the study. One who cares to cultivate originality and one who has even one hour a week to devote to mechanical solutions which require no special mental effort, can not fail to appreciate the disciplinary value.

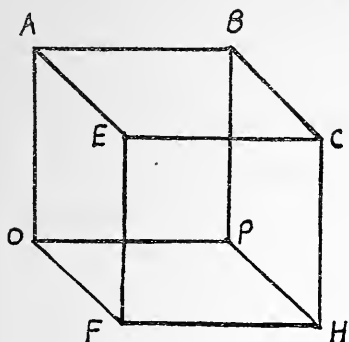
A number of such constructions are appended, to be taken in connection with the study of the outline text.

A preliminary drill upon concrete geometry is helpful. Cut out triangles, squares, etc., from paper, compare and draw them. In this manner a general idea of the subject, the figures treated, and even the method of reasoning, may be obtained, and the transition from this to the abstract will be easy.



Construct from paper, models of the figures shown

above, and fold into triangles, squares, and other polygons. Bring the edges together and form a pyramid, a cube, an octagon, an eight-sided figure and a twenty-sided figure.



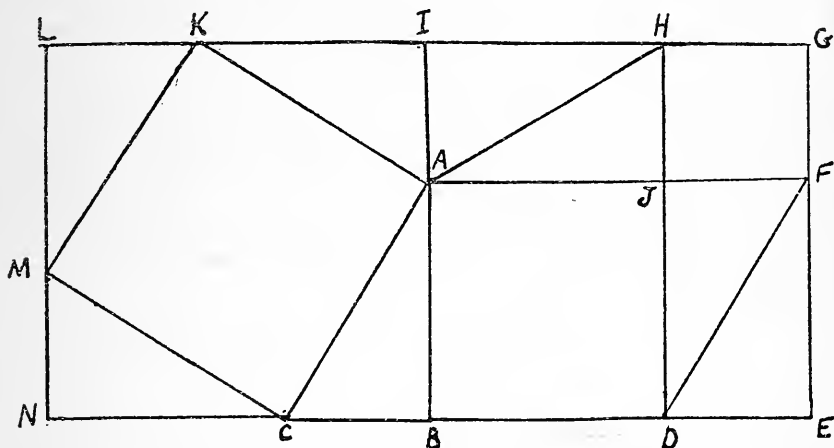
How many surfaces has a cube?

How many corners?

How many edges?

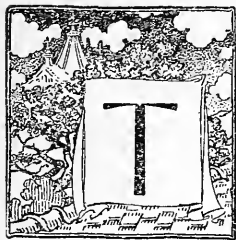
What are all its angles?

How many angles has it?



Let ABC be the right-angled triangle; AB perpendicular, CB base, and AC hypotenuse. Prolong AB to I , making AI equal to CB ; construct the squares $BEGI$ and $BNLI$; draw AF parallel to BE from A ; lay off BD equal to AB , and draw HD parallel to AB . Then the square $BEGI$ is composed of how many and what figures? The square $BDJA$ has a side equal to ———? The square $HGFJ$ has a side equal to ———? What can you say of the triangles AHI , AJH , JDF , and DEF ?

SOMETHING FOR THE ALGEBRA STUDENT.

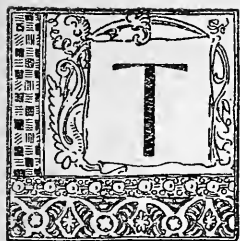


THE civilization of the Egyptians, and in particular their astronomical calculations, have been generally accepted as implying that they were fairly proficient in the use of numbers. Their records indicate that they had some idea of algebraic symbols also.

Algebra differs from arithmetic in the use of negative quantities. At first, this is sometimes a very difficult matter to comprehend. That a negative number is said to be algebraically greater than another negative number, when it is numerically less than such other number, is not understood at first glance. Also, that the multiplication of a minus quantity by a minus quantity gives a positive quantity, is a statement that by many is taken for granted, until familiarity that comes with much practice, gives the fact more of reality.

As algebra is a kind of generalized arithmetic, in which quantities and operations, and often the results of operations, are more frequently represented by symbols, it is an invaluable instrument in intricate calculations of all kinds, and enables operations to be performed and results obtained that by arithmetic would be impossible. Most problems in algebra are stated in the form of an equation. By the use of the equation, many questions difficult or impossible of solution by arithmetic, may be easily solved by algebra.

CHILD STUDY.



THE elaborate system and complicated methods of child study that are advocated in most of the works on that subject, and also in the educational journals, are practically useless to the average teacher of the ungraded school. Such teachers have neither time nor means for carrying out such a line of work. It does not, however, necessarily follow that child study is beyond their reach. To know the subjects which she is to teach, and to know the child, are the two great requisites of a successful teacher, and all teachers should be thorough students of these matters.

In the beginning all knowledge comes from observation. The child's powers of observation are active and partially developed when he enters school. The teacher should discover to what extent these powers have been developed and note the limitations of the child's powers as soon as possible. Many children are considered dull and sometimes stubborn on account of defective sight or hearing. Such children are reticent concerning these defects, even if they know of their existence; school becomes a place of torture to them, and all too often they retaliate upon the teacher and their fellow pupils.

The child who appears unnatural and particularly timid in school after he should have become accustomed to his surroundings, should at once be made the subject of special attention by the teacher. Sight and hearing should be tested and the results noted. This can be done by a few simple experiments which space will not admit of outlining here. The tests should be made when only the teacher and child are present. The child's general health often

has an important bearing upon any defect in sight or hearing, and should be noted in connection with other observations.

The adaptability of surroundings and conditions to the everyday work of the school should be another matter of concern to the teacher. Poor ventilation, bad light, imperfect heating, and seats which do not fit the pupil, are liable to work injuries which will more than overbalance the benefits derived from the instruction. An intelligent teacher, if conscientious in the discharge of her duties, does much to remedy such defects in her schoolroom.

But however important the study of the child from the standpoint of his physical life and his surroundings may be, the study of his soul-life is of far greater importance. Dr. Holmes saw three Johns in his companion at the breakfast table; viz., his (Holmes's) John, John's John, and the world's John. Likewise there are three Johns represented by each boy who enters the schoolroom; they are the schoolroom John, the playground John, and the home John. These three may be, usually are, radically different. To understand the real John the teacher must become acquainted with all three. It is needless to say that this acquaintance should be made in such a way that John will not realize that he is being studied. This requires tact and patience.

Again, the attitude of the child toward the school depends very largely upon the extent to which the work and atmosphere of the school fit into and harmonize with his daily life. In order that this harmony may be established the teacher must become acquainted with the content of the children's minds. "To be interesting, a thing must find a natural place for itself in the child's mind."

Hence interest is determined by the place which the work of the school occupies in the mind of the pupil. Interest leads to attention, and attention is an act of will. Not only his intellectual attainments, but the culture of his will and the proper development of his emotional nature, center around the child's interests.

Interest is inborn; it can not be created, but it can be directed and strengthened, and it is the teacher's duty to lead the child to center his interests on those things which will develop his character. This she can do by studying the likes and dislikes of her pupils, and using such methods in presenting her daily lessons as will cause them to appeal to the needs of the children.

In the ungraded school another class of pupils needs careful attention; namely, those boys and girls who have arrived at the critical period of adolescence, that period when the boy begins to merge into the man and the girl to mature into the woman. This period has been beautifully designated as the springtime of life. It is the period when both boys and girls are liable to be misunderstood, and when they need fellowship and sympathy rather than dogmatic advice. The teacher who can make herself the fast friend of this class of pupils will, through the influence of that friendship, accomplish more toward shaping their future than is possible through any system of instruction.

While a thorough knowledge of psychology and an acquaintance with the most approved methods and apparatus for child study are an advantage much to be desired, the lack of these aids need not deter any teacher from engaging in this important work. Anyone possessed of keen powers of observation, good common sense, and a

love and sympathy with children, can successfully prosecute child study along the lines suggested.

The psychology of the child is not the psychology of the adult. Dr. G. Stanley Hall, in a recent article on this subject, says: —

“We are slowly awakening to a recognition that children are not little adults, with the faculties of maturity on a reduced scale, but unique and very different creatures. Their proportions are so different that if the head, body, and limbs were each to grow in its original proportion until they reached adult stature, they would be monsters. Adaptable as children are, their ways and thoughts are not ours; and the adult can no more get back into the child's soul by introspection than he can pass the flaming sword and reclaim his lost Eden.”

In all child study we will do well to remember the words of the apostle: “When I was a child, I spake as a child, I understood as a child, I thought as a child; but when I became a man, I put away childish things.”

“Talk not of wasted affection, affection never was wasted;
If it enrich not the heart of another, its waters returning
Back to their springs, like the rain, shall fill them full
of refreshment;

That which the fountain sends forth returns again to
the fountain.”

-Longfellow.

FORENOON.

TIME	RECITATION.		STUDY.				
	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade		
9: 00	5	OPENING EXERCISES.					
9: 05	10	1st Grade Reading	Reading	Written Language	Arithmetic	Arithmetic	
9: 15	10	2d Grade Reading	Work with Words	Written Language	Arithmetic	Arithmetic	
9: 25	15	4th Grade Reading	Drawing	Reading	Arithmetic	Arithmetic	
9: 40	15	3d Grade Reading	Work at Blackboard	Drawing	Arithmetic	Arithmetic	
9: 55	20	5th Grade Reading	Seat Work in Number	Drawing	Written Language		
10: 15	15	1st Grade Number	Writing from Copy	Blackboard Work	Written Language	History	
10: 30	10	RECESS.					
10: 40	20	6th Grade Arithmetic	Writing Words	Writing from Copy	Number	Geography	
11: 00	20	4th Grade Arithmetic	Work with Objects	Number	Number	Geography	
11: 20	15	3d Grade Arithmetic	Slate Work	Number		History	
11: 35	15	2d Grade Number	Work on Blackboard		Reading	Language	
11: 50	10	2d and 3d Grade Spelling	Dismissed		Language	Language	
12: 00	60	NOON RECESS.					

The above program is suggestive, and provides for the largest number of recitations which it is profitable to attempt in a day. While the work is arranged under five grades, this does not necessarily mean that it provides for only the first five years' work represented in the state courses of study. Suggestions for alternating studies and combining classes are given in those manuals, and they should be consulted in making the program.

1

The study was designed to test the hypothesis that the use of a computer-based learning system would result in higher scores on the lesson immediate posttest and the lesson delayed posttest than the use of a traditional classroom. The study was conducted in a classroom setting. The study was conducted in a classroom setting. The study was conducted in a classroom setting.

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HOME STUDENT'S AID.

W. F. ROCHELEAU, EDITOR.

Published by

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HOSTE STUDENT'S AID

SUPPLEMENTING THE
OUTLINE TEXT OF THE
INTERSTATE SCHOOL
OF CORRESPONDENCE

HOW TO IDENTIFY THE CONIFERAE



ARE there any cone-bearing trees in your vicinity? Now hands up, how many had to inquire before they really knew? If there are any, are they native, or have they been introduced to your locality? Wouldn't it be an interesting adjunct to your *winter* study of botany to identify the native cone-bearing trees about you and to learn something of the characteristics and commercial value of each? This is how you may do it if you live east of the Hundredth Meridian and north of the Ohio. If you live outside of those limits, the method is still good for most of the cone-bearing trees you will find.

At that season of the year, nearly all of the cone-bearers are conspicuous because of their evergreen foliage so that we can find them with little or no difficulty. But there are two of them not so easily found.

A. NOT EVERGREEN.

I. Growing in dense groves in the swamps in the northern part of the region mentioned is a tall, slender tree, fifty to one hundred feet in height, with a straight trunk and slender horizontal branches, a smooth bark and hard, resinous wood. Its leaves, which were thread-like and an inch or two long, arranged closely in many leaved bunches along the branches, withered and fell in the autumn, and have left the tree naked, except perhaps for a few persistent little cones. Earlier in the season these cones, a half inch long and broadly egg-shaped, were very pretty from the time they were scarlet flowers, through their green and violet youth even to their purple and brown maturity. This tree is the *American* or *Black Larch*, the *Hackmatack* or *Tamarack*.

II. A large and valuable tree found from the swamps of southern Delaware and Illinois southward and westward, is the other one of this group, the *Bald Cypress*, which to the south becomes so conspicuous a feature in swamp vegetation.

B. EVERGREEN.

The leaves of the cone-bearers are usually slender and awl- or needle-shaped. It is from their arrangement that we can most easily identify the different species.

I. The leaves are clustered closely in groups of from two to five, the base of the bundle being inclosed in a little brown sheath. This group contains the pines, and the number of leaves in each sheath will help us to identify the species.

(1) If there are five needles in a bunch, you may know you have the *White Pine*. If the tree is a good specimen,

you will see a tall, straight trunk from eighty to one hundred fifty feet in height, giving off at intervals great, flat, regular whorls of branches. These make a conical, massive tree as noble and beautiful as it is valuable. It is the most valuable timber tree in the world, and the vast forests of it that covered the northern parts of the United States have been one of their chief sources of wealth. The leaves are three to five inches long, soft and very slender, light bluish green and three-sided; the cones are about six inches long, cylindrical, slightly curved, and hang solitary and drooping from the branches. The bark is perfectly smooth in young trees, growing rough in the elder ones. It is lighter than the bark of other pines, and readily recognized by the practiced eye. In fact, a little care will enable you to easily recognize the different pines at a considerable distance.

(2) If there are three leaves in a bundle you have probably found the—

(a) *Pitch Pine*, a tree thirty to eighty feet high, with very rough, deeply fissured, dark bark, and a trunk that is usually crooked and of little value. You will not see this often west of the Alleghany mountains or north of the Ohio river. You may have found the—

(b) *Yellow Pine*, though the leaves of that are usually in twos, under which head it is referred to again; or, if you are very far south, you may have found the—

(c) *Georgia Yellow Pine*, famous for its exceedingly hard and resinous wood. But this is rarely found north of the southern boundary of Virginia.

(3) If there are two leaves in a bundle it may be any one of five different species, but you can distinguish them easily. Two of them may be set aside for most of us.

The *Table Mountain Pine* is confined to narrow limits in the Alleghany mountains, and the *Gray Pine* is a straggling shrub or low tree of the northern borders.

(a) The most important one remaining is the *Yellow Pine*, but this is found only along the Atlantic coast, in the Gulf states, and parts of Kansas, Missouri, and Illinois. It is a fine, straight tree, with regular branches and a pyramidal top. The timber is hard and very valuable. Though sometimes on young shoots the leaves, four or five inches long, are in threes, they are not so on the branches. The cone is in old trees not more than an inch and a half in length, the smallest of pine cones. The scales are tipped with a weak prickle.

(b) Next in importance is the *Red* or *Norway Pine*, which is widely distributed through our region. This is a fine tree fifty to eighty feet high, with low and regular branches. The bark is smooth and reddish yellow, making the trunk conspicuous. The needles are five to eight inches long, and the cones, two or three inches long, rounded at the base, and having smooth scales, are sometimes crowded in large clusters.

(c) The remaining tree is the *Jersey* or *Scrub Pine*, which is easily recognized by its short, stiff, bluntish needles, and the *smooth* young branches, which in other pines are scaly. The scales of the cones are armed with a stiff, straight prickle. This is not a valuable tree; the wood is full of pitch and does not make good fuel even.

II. The leaves are not clustered, but are borne singly on the branches.

(1) If the leaves are needle-shaped, four-sided, and arranged thickly all around the twigs, the tree is a *Spruce*. There are two native species.

(a) The *Black Spruce*. This is found in the swamps and cold mountain woods from New England and Pennsylvania, west and northward. Its leaves are mostly straight and stiff, sharp and dark green; the cones, broadly oval, have scales with wavy or toothed edges. The tree is from thirty to sixty feet in height and has light, straight-grained wood that is valuable for masts and spars.

(b) The *White Spruce* is a taller, handsomer tree, sometimes reaching one hundred fifty feet in height. It is one of the most important lumber trees, and its habitat runs a little to the north of the Black Spruce. Its leaves are curved, bluish green, and much lighter than those of its brother, as is its bark also.

(c) The *Norway Spruce* is not a native but is widely cultivated. It is finer and larger than our trees, and has cones five or more inches in length, which with its heavily drooping branches make it easy to recognize.

(2) If the leaves are very short, awl-shaped, or scale-like, the tree is the *Arbor Vitæ* or a *Cedar*.

(a) The *Arbor Vitæ* is easily distinguished from the Junipers or Red Cedars by its flattened leaves closely pressed to branches that split up into flat sprays. Its cones are small, pendulous and dry, and the trunk is covered with a pale, shreddy bark. But one tree is liable to be confused with it; and that is the White Cedar of the Atlantic and Gulf coasts. The *Arbor Vitæ* is a strongly scented tree, widely cultivated in hedges. It grows to a height of twenty to fifty feet, and is found in the swamps and on cool, rocky banks from the Atlantic coast through Pennsylvania to Minnesota.

(b) The *Red Cedars* may be known at once by the

fact that they have instead of the ordinary cone of the other members of the family, a bluish, berry-like fruit, bearing a whitish bloom. One species is a shrub in dry, sterile hills. This is the common *Juniper*. The other, the *Red Cedar* proper, or *Savin*, is found varying from a straggling or wierdly contorted shrub to a fine, straight tree, sixty to ninety feet high, pyramidal in form. In young, or rapidly growing shoots the leaves are awl-shaped, very sharp and stiff, and arranged in pairs, while those of the common *Juniper* are in threes. The *Red Cedar* is the most widely distributed of our cone-bearing trees. The wood is very valuable in cabinet making, and is familiar to us all in our lead pencils. The sap wood is white, but the heart wood usually a dull red and very fragrant.

(3) If the leaves are flat and arranged in two ranks, or, when young, all around the branchlet, the tree is one of the two remaining cone-bearers, a *Fir* or a *Hemlock*.

(a) The *Balsam* or *Balm of Gilead Fir* is a slender tree twenty to sixty feet high, pyramidal in form, with smooth, unbroken bark, usually covered with blisters, which furnish the valuable Canada balsam.

(b) The *Hemlock* on the other hand is a graceful tree of very irregular outline with light, drooping, or horizontal branches. Its cones are very small, not over three-fourths of an inch long, and its delicate foliage green above and gray below. The timber is coarse, and the principal value of the tree at present is in the bark, which is used extensively in tanning operations.

The principal facts of our classification are put compactly together for ready reference in the following outline.

Cone Bearers.

A. Not Evergreen.

I. Swamps to Northward — Tamarack.

II. Swamps to Southward — Bald Cypress.

B. Evergreen.

I. Leaves Clustered — Pines.

1. Five in a cluster — White Pine.

2. Three in a cluster

(a) Very rough, dark, deeply fissured bark. East. — Pitch Pine.

(b) If far south, possibly Georgia Yellow Pine.

(c) Or if on young shoots, possibly the Yellow Pine.

3. Leaves, two in a cluster

(a) Only in Alleghany mountains — Table Mountain Pine.

(b) Straggling shrub of northern borders — Gray Pine.

(c) Very small cone — scales with weak prickles — Yellow Pine.

(d) Cones larger — smooth scales — Red or Norway Pine.

(e) Short, stiff, bluntish needles — smooth young branches — Jersey or Scrub Pine.

II. Leaves Not Clustered.

1. Needle-shaped, four-sided — Spruce.

(a) Dark foliage and bark — Black Spruce.

(b) Light foliage and bark — White Spruce.

2. Very short and awl-shaped or scale-like.
 - (a) Flat, dry cone — Arbor Vitæ.
 - (b) Along Atlantic and Gulf coasts, possibly White Cedar.
 - (c) Bluish berry — Red Cedar.
3. Flat and two-ranked.
 - (a) Slender and pyramidal — Balsam Fir.
 - (b) Irregular in outline, graceful, horizontal, or drooping branches — Hemlock.

In the early winter days, before the snow becomes so deep as to interfere with walking, will it not be an interesting thing to search for the cone-bearers, to gather specimens of branch and cone, to study them carefully and notice many points of similarity and difference that have not been touched upon here? Will it not be interesting to have your pupils aid in the search and join in the identification? They will like to help.

Then when any tree is identified it should be studied as a whole, compared with other trees, for as soon as the eye is trained no two trees seem alike. Each has its own personality, but every species has family traits so that hemlocks and spruces are no more to be confounded than cats and lions. Trees have some almost human traits; some are great and noble and you trust them, some seem sly and inquisitive and you shrink from their presence, and others stretch out their protecting arms and shelter you with loving kindness. Of all, the pines and their family seem the aristocracy of the tree world, the highest type of arboreal growth.

THE READING OF A STORY.



T school a child is taught to read aloud to his teacher and to read to himself in order that he may learn the lessons assigned him from textbooks. Occasionally by great good fortune he is taught to read for his own amusement and recreation. When he grows up, if he is a business man, he reads the newspapers to gratify his curiosity and to assist him in his occupation. Sometimes he reads the articles in the current magazines, but rarely goes farther. The girl becomes a woman and the cares of the family, or the demands of society, or perchance the claims of the work by which she earns her livelihood, prevent her from doing more than to skim the short stories in the periodicals, or to dip into the last much-discussed novel. She ceases to read for improvement, and has never acquired the power to obtain rest and pleasure from good literature. Perhaps the schools are at fault for this, but certainly the individual is, if that which comes from ignorance can ever be called a fault. If children were taught how to get the most enjoyment from their reading, or if older persons would train themselves to read as they should, life would become much more delightful in this age of cheap books and inexpensive magazines.

People are too afraid to read the thing they really enjoy. Feeling that they must read to "improve their minds," they imagine that improvement comes from

delving into dry old tomes of history, or from losing themselves in the intricacies of philosophical disputation. It is not an unusual thing for a father to urge his son to read such books as Gibbon's *Decline and Fall of the Roman Empire*, or Macaulay's *Essays*, and to cast aside the entertaining stories of adventure that the lad covets. The independent reader, anxious to improve himself, enters upon an elaborate and systematic course which he abandons in weariness and despair before he has fairly begun it.

Enjoyment is no sin, it is the base of all rational improvement. This enjoyment may be intellectual, and the trained mind may find the keenest pleasure in the most abstract arguments, or in the discussion of abstruse problems. It is the trained mind of the educated person or the rare intellect that dominates some characters. But for most readers, particularly those who are young or whose education is to a certain extent limited, pleasure must come from a direct appeal to the emotions. Sympathy and love, affection, love of fun, and admiration of courage and beauty are inherent in nearly all, and the literature that is popular appeals to some or all of these feelings. The reading one selects then for his earlier efforts should be such as will excite his feelings and rouse his sensibilities in such a way that they take active part in the formation of correct and discriminating taste.

For this purpose fiction in many of its manifold forms is most effective, and if properly read nothing is more stimulating or more apt to lead to higher effort. But "if properly read" is a significant phrase; for more always depends upon the manner of reading than upon the matter that is read.

Unless taught to regard it as childish and un- l, as beneath the dignity of a grown person, almost everybody enjoys a story, a novel. It is usually read for the excitement of the plot, for the interesting incidents, the startling disclosures, the humorous situations, or the pathetic occurrences. From the "penny dreadful" with its twenty thrills for a nickel, to the latest religious novel, the plot is the only thing that attracts the attention of the majority of readers. If that interests them, the story is "good;" if not, they "don't like it." Such reading as that is not only unprofitable, but it is destructive to good taste, and in the end to the pleasure that at first attracts. It is such reading that leads to the habit of skimming, and breeds an intellectual laziness that is apt to become habitual. But the same stories properly read will stimulate the mind, cultivate the taste, and lead on to equal enjoyment in the essays and poetry which make up the great bulk of the literature that inspires and ennobles.

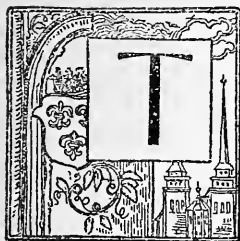
The story is read first for the plot, but at the same time the wise reader is wide awake to the character of the personages who appear in the story. He is not so absorbed in the incidents in which Jeanie Deans is an important factor, as he is in the character she manifests in her acts; he is not so moved by the incidents in *The Newcomes* that he fails to take to his heart and make a personal friend of Colonel Newcome. The manner in which a person of a certain type of character acts under given circumstances embodies a lesson for any one of us, and in the great stories conduct expresses what the great students of humanity consider their wisest conclusions. It is in the exposition of human nature that the story does its greatest work, and often, as in the

slow development of the character of Tito Melema, the reader may be given so startling a warning that his own character will be changed. The struggles of Oliver Twist will prove an inspiration and a help to other boys when Oliver is well known to them.

No well-written story fails to have a lesson for the reader, even if it gives but a glimpse of a certain grade of society, and many contain such vivid pictures of the habits, the manners, and customs of a far-away age that the best of history pales before them. Our ideas of the age of chivalry, of feudal customs, and of English life after the Norman conquest have been formed much more by *Ivanhoe* than by Hallam's *Middle Ages*. But he who is absorbed wholly by the exciting incidents, who, while thrilled by the uncertain issue of the tournament, fails to call up the brilliant scene at the lists, the charging horses, the banners, the arms and accoutrements of the riders, the dress of the spectators, and the tents of the waiting knights, is losing the best part of the experience. The imagination must be encouraged to picture the scene, to bring up one by one all the details until the reader feels himself present at the spectacle. Time is required for this, but it is time well spent. We can not all visit Florence, but we can assist George Eliot to restore it as it was in the days of Savonarola, and through its ancient streets we can follow the sturdy old reformer to his doom.

These are some of the things which a novel can do for us. It can tell us a story. It can teach us to know new people and study their characters. It can show us the influence of incident on character, can stir the imagination to picture vividly the scenes described, and can convey a warning and an inspiration as nothing else can.

RECREATIONS IN PHYSICS.



HERE are many simple experiments which can be performed by the student at home or by the teacher in the school-room. These are of interest because of the amusement they afford, as well as the principles which they illustrate.

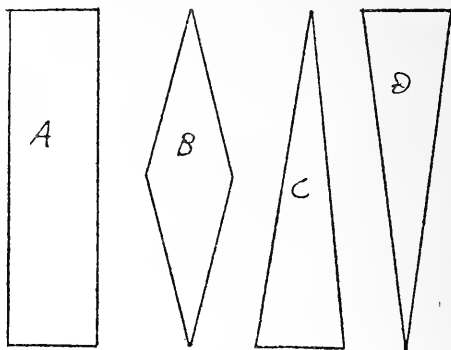
The preparation of suitable apparatus for such experiments is also a valuable training for the hand and eye.

EXPERIMENT No 1: To illustrate divisibility of matter. Take a piece of blue vitriol about the size of a bean, and pulverize it; put the powder in a glass of water. The color of the water will not be perceptibly changed. Add a few drops of aqua ammonia, and the liquid instantly becomes a deep blue. The ammonia renders each particle of the vitriol visible. This makes a very convenient colored liquid for other experiments. A red liquid can be prepared in a similar manner by using cochineal and ammonia with water. A dark solution of this makes a good red ink by the addition of a little gum arabic, a piece the size of a pea to an ordinary ink bottle full of the liquid being sufficient.

EXPERIMENT No. 2: To illustrate composition of forces. Take a common slingshot; hold it in position to shoot, and note the relative position of the rubbers; lay it on a sheet of paper, and complete the parallelogram by drawing. Explain the principle upon which the shooter works.

EXPERIMENT No. 3: To illustrate centrifugal force. This little experiment, though very simple, is interesting to children. Fit a tumbler into a wire ring so that the ring is about one-third the distance below the top. To this ring attach another wire so as to form a handle resembling a bail. Attach a strong string about three feet long to the handle. Fill the tumbler full of water; by giving it two or three swings back and forth to get it in motion it can easily be swung over the head without spilling a drop of water. Let the children discover why the water does not fall out. Would beans or corn in the tumbler answer the purpose as well?

EXPERIMENT No. 4: To show upon what the true length of a pendulum depends. Cut four pieces of lath each twelve inches long, shape them according to A, B, C, and D in the illustration; put a screw eye in one end, taking care that it is in the narrow end of C and the wide end of D. Suspend all from a wire and start them vibrating together. No two of them will vibrate in the same time. To find the pendulum length of each compare with the simple pendulum as directed in Note 16, Article Physics, third number of Outline Text.



EXPERIMENT No. 5: To illustrate elasticity of the atmosphere. This experiment can appropriately be called the McGinty bottle. Take a large-mouthed bottle like an olive bottle, a tall one is to be preferred, fit it with a cork and fill so the water will touch the cork. Take a

small vial like those used by physicians in dispensing medicine, and fill it so it will float with its mouth even with the surface of the water, then invert the vial and place it in the bottle, and insert the cork. A pressure on the cork in the large bottle sends the vial to the bottom; when the pressure is lightened, the vial returns to its former position. The explanation is simple. The increased pressure of the water caused by bearing down on the cork condenses the air in the vial and allows more water to enter, and the vial sinks. When the pressure is removed, the elasticity of the air causes it to return to its former volume, and the vial rises. That the experiment may succeed, the vial should be carefully adjusted in water in some other vessel before it is placed in the bottle, and should contain no cork. A colored vial or colored liquid in the vial adds vividness and interest to the experiment. When nicely adjusted, this little apparatus is remarkably sensitive, and furnishes a great deal of amusement.

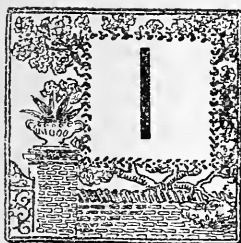
EXPERIMENT No. 6: To illustrate the formation of crystals. Dissolve in a cup of hot water as much white sugar as you can. In another cup of hot water dissolve as much powdered alum as you can. Pour each solution into a shallow dish. Place sticks or straws in the alum solution, and stretch strings through the solution of sugar, and let them stand for a day or more. Beautiful crystals will be found in each dish. Compare these and notice the difference in size and shape.

EXPERIMENT No. 7: To illustrate a common pump. Procure an Argand lamp chimney such as is used on a student's lamp, a large spool, a small spool, a couple of small tacks, a ball of cotton twine, a small piece of thin

leather, and a piece of strong wire about ten inches long. Soak the spools overnight, then fit the large one to the large part of the chimney which sits on the burner, and the small one to the upper part; this spool should move up and down freely in the tube, as it constitutes the piston of the pump. Cut from the leather two pieces the size of a dime; tack one to the upper end of each spool so as to cover the hole through the center. Use only one tack and drive that through the leather just as near the edge as possible and have it hold. These pieces of leather are the valves. Wind each spool with twine until when wet it fits the tube so tightly as to exclude the air. Drive the wire into the upper end of the small spool for a handle. Place the lower end of the pump in water and proceed to work the piston. This forms an excellent pump for experimental purposes, as every movement of the valves can be clearly seen. If the pump can be connected with a reservoir some feet distant by means of rubber or glass tubing, the experiment is all the more effective. This experiment is sometimes spoiled by not soaking the spools before using them. If placed in the tube when dry, they swell as soon as they are plunged into water, and often break the glass.



GENERAL HISTORY NOTES.



IN Hamlet, Act V, Scene I, we find the following allusions to noted mountains in Greece:

Laertes. (Leaps into Ophelia's grave.)
Now pile your dust upon the
quick and dead,

Till of this flat a mountain you have made,
To o'ertop old Pelion, or the skyish head
Of blue Olympus.

.

Hamlet. (Leaps into the grave.)

.

And if thou prate of mountains, let them
throw

Millions of acres on us, till our ground,
Singeing his pate against the burning zone,
Make Ossa like a wart!

“The most prominent natural features of Greece are the numerous bays and gulfs which, broken by many headlands and occasionally dotted with islands, set far into the land, and the mountains which cover its surface in a perfect network. . . . To speak of Greece without alluding to its past is as impossible as to travel through the country without seeing the ruined monuments of

former days. The site of ancient Corinth lies at the base of the Acro-Corinth, the isolated hill crowned by mediæval fortifications, which in olden days was the acropolis or fortified citadel of the city of Corinth. . . . Sparta comes upon the traveler with the shock of a great surprise, for it lies in the midst of grain fields and vineyards, . . . and the inconsiderable remains of the ancient city . . . give one an idea of the home of the old Spartans very different from that which the name usually suggests. . . .

“The sanctuary of Olympian Zeus, the great national shrine of the ancient Greeks, lay in the valley of the Alpheus. The following morning we visited the . . . ruins, which were laid bare by the great German excavations within the Altis, or sacred precinct. At the foot of the Cronus hill lie the ruins of the Heræum, the oldest Doric temple known, and it was in the interior of this building that the most precious individual find of the excavations was brought to light. . . . Here, on the 8th of May, 1877, the Germans unearthed an original statue by the hand of Praxiteles himself, the god Hermes, bearing upon his arm the infant Dionysus, the god of wine. . . . The exquisite finish of the marble, the graceful lines of the composition, and the idealized beauty of the head, with its pure Greek profile, make this statue the most perfect example of Greek art.” . . . —*Peloponnesian Journeys*. Charles Young, in *Bulletin of the American Geographical Society*, No. 2, 1900.

In 1898, excavations in Corinth uncovered the synagogue in which Paul preached.

The modern kingdom of Greece was established in 1830, after the overthrow of Turkish rule. The legislative authority is vested in one house, consisting of 207 members, elected for four years by universal manhood suffrage. The reigning king of Greece in 1900 is George I, a son of the king of Denmark. He was born in 1845.

A company of American teachers on a Mediterranean excursion steamer sailed along the shores of the Peloponnesus. A pretty schoolma'am approached the captain, and calling his attention to a white substance covering the mountain peaks, "Will you kindly tell me what that is?" she asked. "That is snow, Madam," replied the skipper. "There!" she exclaimed, "I just *knew* it was, — Miss Barnard said that was Greece!"

Cardinal dates in the history of Ancient Greece:

B. C.

1184. Troy captured by the Greeks.

776. Beginning of the first Olympiad.

594. Legislation of Solon.

490. Battle of Marathon.—Miltiades victorious.

480. Battles of Thermopylæ and Salamis.

479. Battles of Platæa and Mycale.

461–429. Age of Pericles.

336–323. Reign of Alexander the Great.

146. Destruction of Corinth.—Greece becomes subject to Rome.

Not less important than the matter of a history lesson is the plan of its study. No attempt will be made here to discuss the art of study comprehensively, or even to

lay down any general rules for the study of history. The suggestions here made will apply to the study of a single number (the third) in the general history course to which this book is supplementary.

1. Study a map of Italy. Examine it with a view to imprinting a picture of it and its surroundings on the mind. Study it until, with the eyes closed, the Italian peninsula can be distinctly seen; with Rome and the Tiber properly located; surrounded by the water of the Mediterranean and the Adriatic,—the toe of the boot seeming ready to kick Sicily over upon Carthage; with Corsica, Sardinia, France, and Spain on the west, the German states on the north, and Illyria, Greece, Thrace, the Black Sea, and Asia Minor eastward. This well done, is enough for one day's study. As the study of Rome progresses, add to the mental map such countries, cities, and other geographical features as are mentioned in the text.

2. Read the number through from beginning to end, in order to obtain a general idea of the subject and grasp the leading thoughts. When this is finished, the mind will be in possession of a skeleton of Roman history which may perhaps be represented thus :—

ANCIENT ROME.

753 B. C. to A. D. 476.

I. Introductory.

1. The country. 2. The people. 3. Religion. 4. Government.
5. Classes. 6. The kingdom.

II. The Roman Republic, 509 to 27 B. c.

1. Early struggles for freedom.
2. Beginning of expansion.
3. Territorial growth.

4. Fall of the republic.

III. Imperial Rome. 27 B. C. to A. D. 476.

The above may constitute the second day's study.

3. Beginning again at section 62, study intensively as much of the text as can be *mastered*. Make constant use of a map, a dictionary, and if possible, an encyclopedia. If the portion studied includes sections 62-67, consult a map of Rome, if one can be obtained, and locate the forum and the two hills mentioned in section 67. Consult the dictionary for such words as mythology, patrician, plebeian, aliens, naturalized, etc. In the encyclopedia, read the articles on Romulus, Augustus Cæsar, Spartans, Athenians (or Sparta and Athens), Solon and Tarquin. Only a few dates are given in the text,—these should be memorized. Constantly exercise the judgment and reason by asking such questions as these: Why called *Rome*? What are the other Aryan races? How does the government of Rome compare with that of England, the United States, and other countries? Is there anything in society among us which corresponds to the classes of people in Rome?

4. Recite the lesson to yourself topically. Continue this until you are perfectly familiar with it.

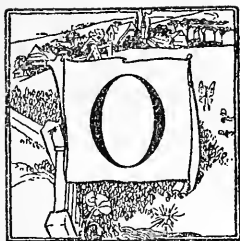
5. Pursue the same plan on subsequent days with other portions of the text.

6. Before writing answers to test questions, review the entire number mentally. It may be best to re-read the text before doing this.

If the above plan is found to be a good one, it may be adapted to succeeding numbers of the history.

GERMAN INDUSTRIES.

(Read in connection with Geography.)



ONE of the most noticeable features of progress among European nations has been the industrial development of Germany under its present political organization.

When we consider the military prestige and commercial importance of the German Empire, we are apt to overlook the fact that it is the youngest European power, dating from 1871. The steps leading up to the formation of the empire were many, and were taken very slowly until the ascendancy of Prussia after the Congress of Vienna, in 1815. From that time Prussia's policy was to form the German states into a nation under one government, and the empire was the result. Under the wise policy of the central government the country has arrived at a state of great prosperity.

All industries seem to flourish. The leading agricultural products, commercially, are beet-sugar and wine. The annual production of beet-sugar is nearly two million tons, by far the largest in the world, and nearly twice the quantity produced by Austria, Germany's closest rival. The production of this amount of sugar calls for the planting of over a million acres to sugar beets and furnishes employment to a large number of people.

But the development of the manufacturing industries is the most important. It is estimated on good authority

that over sixty-seven per cent of the population are engaged in manufactures and commerce. There is a great variety of manufactures, but the most important are those of iron and steel, coke, textile fabrics, glass, chemicals, clocks, earthenware, and woodenware. Between 1890 and 1895 the export of finished iron and steel increased over fifty per cent, and there has been a large advance on this during the last five years.

The Germans have become famous for their construction of heavy iron and steel work, like the keels and machinery of great ships such as the "Deutschland" and "Kaiser Wilhelm der Grosse," and heavy artillery such as that produced at the Krupp Gun Works at Essen. This establishment is the largest manufactory of its kind in the world. Its factories cover over 1,000 acres of land, and it employs more than 20,000 men. The Krupp guns have become famous in all countries.

The superiority of German steel and iron is due to the excellence of the blast furnaces, and special training of the workmen. All furnaces and machines for the working of iron embody in their construction the results of the latest scientific research; and all superintendents and foremen, and even most of the men at the head of gangs of workmen have been prepared for their work by special scientific and technical education. At some of the works evening schools are conducted, at which the head engineer and his assistants give lessons to the younger workmen. The instruction in these schools includes drawing, designing machinery, all engineering processes incident to the construction and repair of works, and the chemistry of iron and steel.

The development of the iron and steel industry is

typical of the development of others. Most of our anilin dyes besides many other chemical compounds in general use are made in Germany, and are noted for their purity and excellent quality. German textile fabrics also show the remarkable skill of the workmen who produce them.

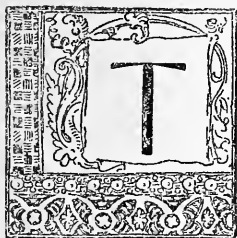
The secret of this remarkable industrial success can all be summed up in one word — education. No other country is so well supplied with industrial schools in which all trades are represented. There are schools for ship-building, for weaving and knitting, for dyeing, etc. These schools are under government control, and are supplied with the best instructors that can be provided. In some localities, where hand looms are in general use, teachers of weaving go from house to house and give instruction. One of the American Consuls says this of the effect and value of German industrial education: —

“Industrial, industrial-art, and technical schools, more than anything else, have made Germany what she is. No one who has given attention to her industrial development can have failed to find her schools at all times aiding manufacture and commerce. It is to this technical training, this endeavor to obtain exact knowledge of forces, factors, commodities, sources of supply, and markets with their various demands, etc., that the country owes her remarkable success.”



SOME COMMON ERRORS IN THE USE OF WORDS.

(Read in connection with Grammar and Analysis.)



THE verb is the most important part of speech in any language, since it contains the power of assertion, without which there could be no communication of thought. By ancient grammarians the verb was considered the soul of the sentence, and was called *verbum*, which means "the word." This is the origin of the name now in use for this part of speech. The Chinese call verbs "live words," and nouns "dead words."

The different forms of the verb in its various moods and tenses are indicated by inflections in most languages, but the English verb is not so fortunate. With few exceptions, the mood and tense of the verb are determined by its auxiliary or by the context. This leads to errors which would not be made in the use of an inflected verb. Some of these errors have been pointed out in the article — Grammar and Analysis — in the third number of the Outline Text; others demand more careful attention.

Certain irregular verbs in common use are the source of many errors in both spoken and written language. In the present tense some of these verbs are very much alike in spelling and pronunciation, and are often interchanged. Prominent in this list are *lie* (to rest) and *lay* (to place);

also *sit* (to rest) and *set* (to place). *Lie* and *sit* are intransitive and *lay* and *set* are transitive. The change of form in the past tense makes the use of these verbs still more perplexing. Everyone should become perfectly familiar with their principal parts; but a mere knowledge of their various forms is not sufficient unless one has been drilled in their correct use from childhood. "I laid down for an hour;" "John set up until midnight;" "Mary, lie the book on the desk;" "Henry, sit the chair in the corner;" are erroneous expressions all too common, even among teachers. Many who misuse these verbs could give the principal parts correctly without hesitation if called upon to do so. Their errors arise from habits of speech formed in childhood, and can be overcome only by continual watchfulness and drill, until the correct forms have become habitual.

The following plan has proved helpful to the writer in assisting pupils to correct these errors. Construct a table of the irregular verbs which need attention. The table should contain the verb, its meaning, and principal parts. It should be large enough to be read from all parts of the room, and should be placed where it will be constantly in view. It can take this form:—

Present	Past	Pres. Part.	Perfect Part.
lie (rest)	lay	lying	lain
lay (place)	laid	laying	laid
sit (rest)	sat	sitting	sat
set (place)	set	setting	set
do	did	doing	done
be	was	being	been
see	saw	seeing	seen

The following device is convenient for drill purposes:—

Use the correct form of	{	lie	}	with	{	to-day
		lay				to-morrow
		sit				
		set				yesterday
		do				last week
		be				etc.
		see				

A daily drill of two minutes will soon enable most pupils to substitute the correct forms for those which they have been accustomed to use, provided this drill is supplemented by the insistence on the part of the teacher of the use of correct speech in all recitations.

Shall and *will* are often interchanged. *Shall* originally denoted obligation, and *will* — desire. *Shall* should be used in the first person and *will* in the second and third persons when simple inclination or intention is expressed; as, I *shall* go; you *will* purchase a hat; John *will* return home. *Will* in the first person, and *shall* in the second and third persons, denote determination and compulsion; as, I *will* have a hat; you *shall* go to school; Sarah *shall* write her exercise. *Shall* in the third person sometimes denotes a promise; as, Henry *shall* have his pay.

Should and *would* follow the law of *shall* and *will*. In using either of these words in asking a question we should use the word which would properly be used in the answer; as, *Shall* you go to town? Yes, I *shall* go.

The following verses were composed by a grammarian many years ago to assist his pupils to remember the use of *shall* and *will*. They are still of some service.

“In the first person simply *shall* foretells;

In *will* a threat or else a promise dwells.

Shall in the second and third does threaten;

Will, simply, then, foretells the future feat."

The use which is often made of certain adjectives is ridiculous. Some one is invited to dine with a friend and speaks of the event as enjoying an *awful* good dinner. Another eats a *splendid* peach, and a third remembers the flavor of an *elegant* pudding, etc. What these people intended to say was that the articles of food which they enjoyed were pleasing or excellent. A dinner partaking of such qualities as to make it awful would not be enjoyed — by the average person at least; and a peach which was really *splendid* could not in all probability be digested. Equally absurd adjectives are applied to dress, especially among ladies.

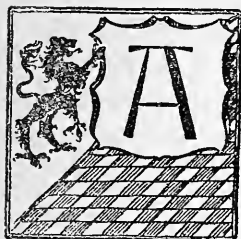
Funny and *queer* are often used in strange ways.

A business firm consisted of two partners, one of whom was much older than the other. The elder had been seriously ill for several years; finally the younger sickened and died. Some one remarked that it was "*funny*" that the younger member should die first. There was nothing funny about it at all. What the man meant was that such an event was strange or remarkable. *Queer* is frequently used in the same sense and with equal lack of propriety.

"Eternal vigilance" is the price of a perfect command of language. Watch yourself and your pupils for errors in speech and correct them whenever found; for vague language conduces to vague thought. "Language should always suggest to the student the thought which it embodies, and the student should look beyond the mere form and perceive the immaterial essence."

THE USE OF OBJECTS IN TEACHING NUMBER.

(To be read in connection with Theory and Art of Teaching.)



FACETIOUS writer of Southern life tells the story of an old colored man who was sent by his employer one morning to count the sheep as they were let out of the yard. The gate was to be opened just far enough to allow one sheep to pass through at a time, and Jonas was to stand by the gate, and count the animals as they went through. As the sheep started from the inclosure, Jonas began to count,—“One, two, tree—and dar goes anodder, and anodder, and anodder——” “Stop, Jonas, what’s the matter with you?” exclaimed his employer. “Well, Boss, you see tree is all I jest know, so when dey gits to be more dan dat, I counts de odder way.” In his knowledge of number, Jonas was but a child of older growth. The principal difference between him and most children lies in his not having a vocabulary which extended beyond his real knowledge, so he could not use words whose meaning he did not know.

The vague idea of number which many children entertain, and their dislike for the study of arithmetic, are, in most cases, traceable to the wrong methods used at the beginning of their training. Wrong methods usually result from an erroneous idea of the subject and a lack of knowledge of the laws of mental activity. There is no teaching to which these charges are more universally

applicable than the teaching of number. Many teachers fail to recognize what number is; some consider it a product of sense-perception; others a property of objects. In fact it is neither the one nor the other. "Number," according to McLellan and Dewey's *Psychology of Number*, "is a product of the way in which the mind deals with objects in the operation of making a vague whole definite." Their idea of number makes it a psychical product which can not be realized either by the senses or by objects alone. "There are two factors in the realization of number: the number as a whole, and the separate units it contains." The recognition of a group involves the recognition of the group as a whole and the units of which it is made up. Suppose the group is one of three blocks, one of which is larger and more brightly colored than the others. This one may make so strong an impression upon the child that he fails to recognize the others. Before he recognizes the group, he must use his power of discrimination to separate the blocks from each other in his mind, then his power of generalization to recognize them as parts of one whole.

The child's idea of objects is that of vague and indefinite wholes, and the teacher who considers that his idea is as definite as that of the adult, makes a grave error. The child's vague idea of an object contains the idea of limit, which is the primary idea of quantity. Our necessities have taught us to determine the valuation of this quantity, and this is done by the means of comparison. If a definite knowledge is to be obtained, the comparison must be made by the use of a definite quantity, usually known as a measure. The application of this measure determines the questions, how much, and how many, both of

which are included in the idea of number. The quantity of wood in a given pile is determined by finding the number of feet in its length, height, and breadth. In other words, by applying a definite measure to its dimensions, and counting the number of times it is applied to each.

All number contains the idea of relative magnitude. This is at first indefinite, and relation grows into distinct concepts as the child's ideas become perfected. Counting and measuring, then, are both essential to a knowledge of number. The teacher who relies upon either alone will not succeed. In counting we deal with the indefinite unit, as so many kernels of corn, apples, violets, etc. While each of these objects, when they are arranged in groups, is a part of a whole, it is not necessarily an equal part of that whole, since the objects may be of different size. The error arising from the use of such objects as definite units of measure, is at once apparent. This is particularly true in the use of this class of objects to illustrate fractions. Teachers can not be held wholly responsible for this error, since many books in common use contain illustrative problems similar to the following: John divides two apples equally among four companions. What part of an apple did each receive? *Ans. One-half.* The error in such problems is obvious. Unless the apples are of equal size (a condition never imposed), the answer is incorrect.

The child's idea of relative magnitude is first expressed by "larger" and "smaller," and "longer" and "shorter," terms which show that the relation is indefinite. The work of the teacher is to lead him to see definite relations, and this is most easily done by calling his attention to the undivided whole, and comparing it

with definite parts. The relation of a foot rule to a six-inch rule will be seen much more quickly and clearly if both rules are used than it will by the use of two six-inch rules. In the latter case the child does not perceive the idea of the foot rule, but of two six-inch rules. By putting the two six-inch rules together and making the foot, and then applying one of them to the foot rule, and seeing how many times he can so apply it, he arrives at the idea of a definite relation.

The above discussion gives certain fundamental principles by which the teacher should be guided in the use of objects in number work. It should also be said that those objects which admit of definite measurement, such as sets of blocks, should generally be used, and that the whole should be presented before its parts.

Remember that units of measure are only relative; what may stand for one in one measurement may be more or less than one in another. Lead the pupils to see this from the beginning. Compare the inch, foot, and yard, for illustration.

Use objects whenever and wherever necessary to enable pupils to arrive at correct ideas of the relations desired. When the idea becomes established in the pupil's mind, he is able to grasp it as an abstraction and dispenses with the object because it has become useless.



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FOURTH
NUMBER



HOME STUDENT'S AID,

W. F. ROCHELEAU, EDITOR.

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HOME STUDENT'S AID



SUPPLEMENTING THE
OUTLINE TEXT OF THE
INTERSTATE SCHOOL
OF CORRESPONDENCE



PURPOSE AND USE OF THE AID.

IN our introduction in the first number of the Aid we briefly set forth its purpose, and gave a few suggestions for its use. We desire to emphasize the purpose of this publication and its value to our students.

The Home Student's Aid is a reading supplement to the Outline Texts, and as such sustains an important relation to the work of the school. We are told by Lord Bacon that reading makes a full man, and we might add with equal propriety that the right sort of reading makes a man strong intellectually and morally. All students need to do some general reading in connection with the subjects they pursue, and this is especially true of the correspondent student. It is the purpose of the Aid to furnish our students with this kind of reading.

Text-books of all kinds consist largely of subjects logically arranged, and emphasized by illustrations. The student who depends upon them alone for his knowledge obtains but a narrow conception of his subjects. The article for general reading is on an entirely different plan. Its use tends to the broadening of one's ideas and the

development of his reasoning powers. Many teachers are poorly prepared to teach because they are and always have been confined to a text-book knowledge of the subjects. They need to do a great deal of collateral reading. The Aid supplies this reading to some extent, and each supplementary article has direct reference to the subject treated in the corresponding number of the Outline Text. *The French in America* contains information which explains and strengthens the work in history of the United States in the second number of the Outline Text. *The British Colonies* bears a similar relation to the work in geography, and so on through the course. Many of the articles in the Aid also contain valuable and interesting information for use in the schoolroom.

The correspondent student sustains a peculiar relation to his instructors. Personal interviews between the student and instructor seldom if ever occur. The instructors from time to time find it necessary to communicate with the student, and to give suggestions and directions that can not well be given directly in connection with the work on the manuscripts. The Aid furnishes the medium for such communication. The suggestions given to our students are such as experience shows to be vital to the success of their work, and are intended to lead the student into broader lines of study. The article *The Reading of a Story*, in the third number, affords an admirable illustration of the point in hand. The suggestions and directions in that article constitute an invaluable aid to all reading. *The Use of Objects in Teaching Number* serves a similar purpose.

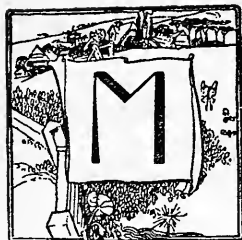
The use of these articles in connection with the corresponding number in the Outline Text will strengthen the

student's work in every respect. A careful study of the plan and purpose of the Aid will also result in better methods of study, and more extensive reading in connection with the subjects studied. In addition to this it will lead every conscientious teacher to careful self-examination in regard to her preparation for her work and methods of presenting it.

The Aid is not an educational journal; neither is it a general magazine, and it can not be made to take the place of such periodicals. It occupies a field distinctly its own, doing for the correspondent student by means of the printed page, what the teacher in the classroom does for his pupils in leading them to original research and supplemental reading. The space in our pages is limited; hence our writers can not ramble nor place undue emphasis on minor details. Every line, every word even, must be fraught with meaning, and every article must have its proper significance, that it may point the way to a broader knowledge and a loftier purpose.



THE VALUE OF EXPERIMENTS.



ANY of our students do not realize the value of performing the experiments suggested in the Outline Texts in such subjects as botany, zoology, and physics. For some unaccountable reason experiments in the branches usually termed sciences are looked upon in a different light from similar lines of work in other branches. A child is directed to take his blocks and prove that two fours make eight, or to write a sentence containing one or more proper names and use capitals correctly, and everyone admits that the work is essential to his understanding of the principles involved. Another is directed to plant a number of different kinds of seeds and observe the different plans of germination, to find the center of gravity in an irregular block, or to dissect a grasshopper, and he at once looks upon the request as a call to do something entirely unnecessary, and in some cases even repulsive. In every case the work called for is based upon the same principle and requested for a similar purpose, viz., ascertaining facts by observation.

All genuine knowledge is obtained at first hand, and it is the knowledge obtained in this way that we are able to use to advantage. Many people deceive themselves by thinking that a verbal description can take the place of actual observation. Such students should remember that every mental picture built upon another's description is

made up of elements already in the hearer's mind, and may be, in fact often is, entirely different from that described. How often the student exclaims, "O, I know that. What's the use of performing the experiment?" Many students will say that they know how a bean and a pea germinate; but when asked to show the plans by drawing are unable to do so, not because they can not draw, but because they find that their ideas are neither complete nor exact. A careful study of the germinating seeds is necessary to the knowledge required. We frequently fail because when we attempt to apply our knowledge we find it to be incomplete and indefinite. Experiments put us in the way to overcome such failures.

All sciences are founded upon laws and principles, few in number but sustaining important relations to all details of the subject. The inductive method is the true method of study in obtaining the foundation for any science. When the fundamental laws and principles are thoroughly understood, the difficulties in the way of mastering the subject have been removed. The great principles and laws of nature whose application has revolutionized the industries of the world, were all discovered by experiment. What the great discoverers have accomplished, every student can demonstrate in a smaller way, by original research while studying the elements of botany, zoology, physics, or physiology.

The student of natural science should be skillful alike in the use of eye and hand. This skill can be acquired only by practice; hence the construction of simple apparatus, the use of the dissecting knife and scissors, as well as observation with the magnifying glass, are necessary to the right sort of training in this line of work.

Experiments are especially necessary to the home student, since he must depend upon his own observations for the illustration of principles and laws. By performing these experiments many a student will connect the principles of physics with the occupation of the farm and shop in a way that gives added interest and greater significance to both. This is also true of the experiments in botany and zoology. The experiments suggested in the Outline Texts are such as the student can perform with a few common household utensils or with apparatus which is easily constructed without expense. Dissection requires a sharp knife and a good pair of scissors, but these can be purchased at small expense. The experiments have been carefully selected with a view to meeting the requirements and limitations of our students, and the instructors urge them to perform faithfully every experiment suggested.

What has been said about the value of experiments applies with equal force to the use of drawing in connection with many subjects. The drawing of forms in botany, zoology, and physiology leads to closer observation than the average student gives them. Drawing maps in connection with history and geography is also invaluable as a means of fixing relative locality of the places studied, and should be practiced whenever necessary to give a clear idea of the subject.

ON READING POETRY.



HAT a very common thing it is for a teacher to think of reading as merely the oral expression of an author's thought, and to allow class training to degenerate into a weak sort of elocutionary drill. The teacher forgets that ninety-nine hundredths of a person's reading is silent, and for his own instruction or entertainment. How to express a thought or an emotion is an impossible problem till one has the thought or the emotion to express. If, then, expressive reading were the end, it would be imperative that a pupil be taught how to read for himself before he is taught to read for others. A teacher can not give instruction in this most important phase of reading unless he has himself acquired the art of mastering the thought, appreciating the beauty, and feeling the emotional strength, of a literary masterpiece. Accordingly it behooves us who are studying by ourselves to think upon the relation our reading bears to our teaching, or, if we are not teachers, upon the relation our reading bears to our life and happiness.

The highest literary art is poetry, and for this reason it has the fewest devotees. "I care nothing for poetry," "I never read poetry except upon compulsion," are statements we hear among ourselves nearly every day. Now, this is not the fault of the poetry, but it is because of our own fancied inability to hear and to feel. Poetry

contains all the intellectual inspiration of prose, and besides that it charms the ear with its music and moves the soul with its passion.

Many poems are primarily stories, and should be read first as such. No novel ever contained a more charming love story or wrought out its characters in a stronger way than *Enoch Arden*, and none ever showed deeper passions or more thrilling incidents than *Lars*. *Ivanhoe* is no better story than *The Lady of the Lake*. Perhaps the plot is a little harder to get from the latter, but have we not long since learned to value what we possess by the effort it has cost us? But remember that besides the story these great poems have all the added charms of poetry.

And what are the charms?—Why, first, there's music—music just as real and perfect as ever welled from the throat of a lark or vibrated from the harp strings of a master. The music comes not from tones merely but from regularly recurring accents and harmonious combinations of melodious articulate sounds. It is only the trained reader who can hear these sounds without the intervention of the human voice. And so at first poetry must be read aloud. Take the first stanza of James Whitcomb Riley's *Mother-Song*:—

“Mother, O mother! forever I cry for you,
Sing the old song I may never forget;
Even in slumber I murmur and sigh for you.—
Mother, O mother,
Sing low ‘Little brother,
Sleep, for thy mother bends over thee yet!’”

Read it aloud till you catch the rhythm of its accents. The accents coming on the first, fourth, seventh, and tenth

syllables divide the line into four groups of three syllables each. These groups are called feet because they measure the line. The next line has three such feet and one extra syllable. The next line is like the first; the next two are not so regular, but the last is like the second. To this rhythm the rhymes add a charm and then the succession of smooth flowing vowels and soft consonants gives the crowning melody of the lullaby the stanza imitates.

The music is not always so sweet and soothing. At times it merely imitates discordant sounds, but then it is harmonious with the ideas to be expressed. From Riley's *A Sudden Shower*:—

“The highway smokes; sharp echoes ring;
The cattle bawl and cowbells clank;
And into town comes galloping
The farmer's horse, with steaming flank.”

Notice the accents now. In each line the second syllable and every alternate one is accented, and this, with the short abrupt sentences, the short vowels and harsh consonants, give the riotous hurry of those fleeing for shelter. This arrangement of accented syllables forming the iambic foot is the most common one in English poetry.

Sometimes all first and succeeding alternate syllables are accented, forming what is known as the trochaic foot, as in Riley's *In Swimming Time*:—

“Childish voices, further on,
Where the truant stream has gone,
Vex the echoes of the wood
Till no word is understood—
Save that we are well aware
Happiness is hiding there.”

There is but one other common metrical arrangement. Two of Riley's lines will illustrate that : —

“There's the song' | of the lark' | when the skies' | are clear',
And the song' | of the thrush' | when the skies' | are gray'.”

The accents divide these lines into groups of three syllables, but the accent falls on the third, sixth, and ninth, while there are two syllables extra making a foot like those in the second quotation. As was said, these divisions are called feet, and the first kind are dactyls (Sing' the old); the second, iambics (The high' | way smokes'); the third, trochees (Child'ish | voi'ces |); and the last, anapests (And the song'). If we would only work a while over the numerous poems found in our books, we would soon unconsciously recognize the striking differences in the feet, and then we would be far on our way to an appreciation of the music. Reading to bring out the accents is called scanning, and the pupil who reads his poetry in a “sing-song” tone is only overdoing a good thing. Of course we must expect the poet to vary the monotony by the use of different feet, different numbers of feet in the lines, and by different rhyme schemes. But a little study will enable us to see that he has a definite plan for each poem and follows it closely.

But music is only the first of the charms possessed by poetry, which also gives us a great fund of apt, forcible and beautiful expressions or phrases that please our senses as a beautiful flower or delicate piece of sculpture does. Readers are always on the lookout for these literary gems, with which they like to store the strong boxes of their memory. This is a good time to look into Riley's poems again, and perhaps we can find some artistic examples

that are worth our while. . . . The moment we open the book, we see these lines descriptive of the ride of autumn's cavalcade, and we must pause to admire his judgment in the exquisite fitness of these most musical words :—

“And the tinkling links of the golden reins
Of the steeds they rode rang such refrains
As the castanets in a dream of Spain's
Intensest gold and blue.”

In a half whimsical comparison, he speaks of a long highway,—

“with sunshine spread
As thick as butter on country bread;”

or he sees —

“a hawk away up there,
'Pearantly froze in the air.”

In other places; he walks “in a dusk like velvet,” the winds “powder him with gleams of sifted sunshine;” in June, “The zephyr throws the shifting shuttle of the summer's loom,” “The lily blows a bugle call of fragrance.”

Besides giving us pleasure by their aptness and by the charming images they call up, these chance expressions show us something of the real nature of the poet. We like to recognize his keenness in observing nature and its phenomena, and his love for outdoor life and the people whose lives are spent in the open air. These side-lights upon an author's character are very attractive to the genuine reader.

But the bell that warns us of the close of this lesson rang several lines back, and we have time to mention but one more of the charms of poetry.

The poet's heart is in his work. He is usually genuine and true in his sentiments, and if we will open our hearts to his words, if we will just for a little while give the reins to our emotions and throw off the callous armor we wear against the world, he will excite our sympathies, soothe our griefs, and give us an inspiration toward something higher and nobler than the daily round of our labors can ever offer. Riley can do this for us, will do it for us if we will but give him the chance : —

“I can not say, and I will not say
That he is dead. — He is just away !

.
And you — O you, who the wildest yearn
For the old-time step and the glad return, —

Think of him, faring on, as dear
In the love of There as the love of Here ;

And loyal still, as he gave the blows
Of his warrior-strength to his country's foes. —

Mild and gentle, as he was brave, —
When the sweetest love of his life he gave

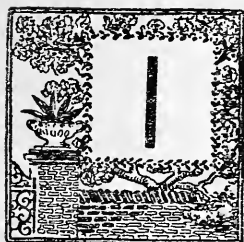
To simple things: Where the violets grew
Pure as the eyes they were likened to,

The touches of his hands have strayed
As reverently as his lips have prayed ;

.
And he pitied as much as a man in pain
A writhing honey-bee wet with rain.”

PROBLEMS IN CONSTRUCTION.

(Study in connection with the fourth number of Arithmetic.)



IN the Outline Text reference is made to the geometrical demonstrations from which we derive the rules for finding the volumes of certain solids. The arithmetic student can construct several of the solids, and discover these rules for himself.

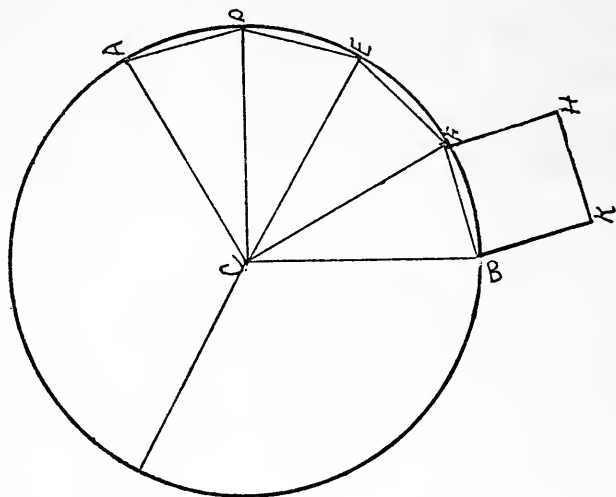
I. To construct a pyramid having a square base.— Draw a circle four inches in diameter; divide the circumference into three equal parts. This can be done easily if you remember that the radius of the circle is just a little less than one-sixth the circumference. By placing one leg of the dividers on the center of the circle, and bringing the point of the other leg just inside the circumference, you will secure practically the right measure. Divide one of these thirds into four equal parts. These divisions will be a little more than an inch in length, exactly one and one twenty-eighth inches. Join the center with each point of division as shown in Fig. 1. Draw a square with sides equal to the short side of one of the triangles. Cut out along the lines CA — CB — AD — DE — EF — FH — HK and KB. Fold on the lines CD — CE — CF and BF.

How many faces has your pyramid? What is its slant height? What is its convex surface? Its entire surface?

Pyramids with any number of faces can be constructed

in a similar manner by dividing the portion of the circle taken into as many parts as the base has sides.

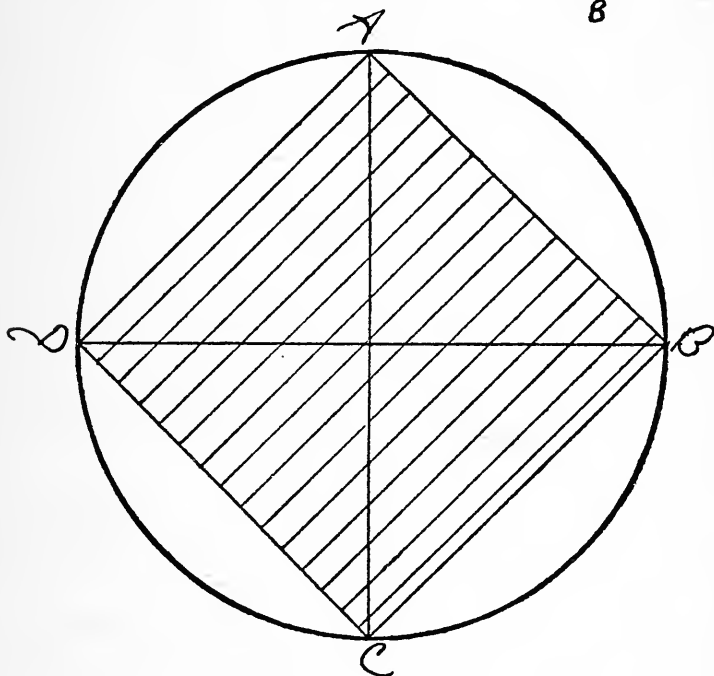
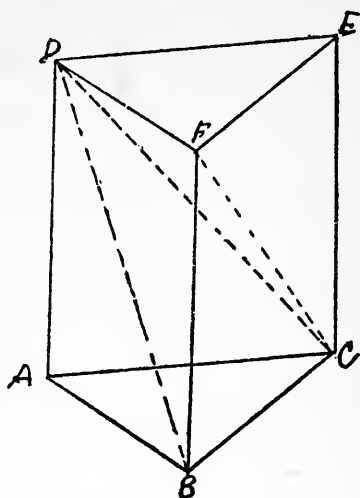
To construct a cone, draw a circle at least four inches in diameter; divide the circumference into thirds; cut along any line, as CA in Fig. 1; lap the circumference until the edge cut along the radius meets the next dividing



line, as CB. What is the slant height of this cone? What is its circumference? (See outline text No. 3, note 2, under Arithmetic.) Can you find the area of the convex surface? Of the base? If so, how?

II. To find the volume of a pyramid or cone.—Construct from some material which is easily worked, a triangular prism similar to that represented in Fig. 2. A large turnip furnishes excellent material for the experiment. The prism should be carefully constructed. See that the two ends are parallel, that the edges of the sides are parallel, and that all surfaces are as near perfect planes as possible. Cut the prism along the dotted lines shown in the figure. Make the first cut from D, following the plane D — BC.

Make the second cut along the plane $C-DF$. The prism is now divided into three triangular pyramids, having equal bases and altitudes; consequently the volume of each is one-third the volume of the prism. The same rule can be deduced from prisms of any form, as they can be separated into triangular prisms which can be divided into pyramids.



The cone can be divided into an infinite number of triangular pyramids, hence its volume is found by the same rule as that of a pyramid.

III. To determine the number of boards that can be

cut from a log.— Construct a circle on a scale of one-eighth; that is, if the log is twenty inches in diameter, your circle must be one-eighth of twenty inches, or two and one-half inches in diameter. Draw two diameters through the circle at right angles to each other; draw lines connecting these points of contact with the circumference so as to form a square, ABCD, Fig. 3. This will represent the end of a square timber that can be cut from the log; apply your scale to one side of this square and see how many boards can be made from it; deduct one-fifth for sawing and the remainder is the number of boards that can be obtained. The last board may be less than one inch thick.



INSECTS INJURIOUS TO GARDEN AND FIELD.

(Study in connection with the fourth number of Zoology.)



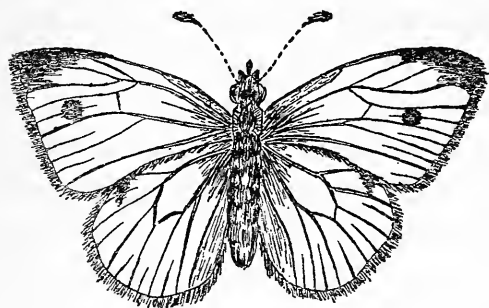
IN the Outline Text brief reference is made to the destructive work of the larvæ of certain insects. A knowledge of the appearance and habits of those most frequently found destroying our common plants is necessary to every gardener and farmer. Every teacher should become acquainted with these insects, and lead her pupils to study their habits. In this way a practical working knowledge of the best means of preventing their ravages may be obtained.

The Saw Flies.— These are among the most common pests of currant and gooseberry bushes. This fly takes its name from the saw-like sting or ovipositor with which it pierces the leaves or stalks of plants for the purpose of depositing its eggs. There are two species, the native and the imported. The imported species is by far the more destructive. The female is about a quarter of an inch long, and is of a bright honey-yellow color. The head is black with the parts below the origin of the antennæ honey-yellow. The antennæ are brownish-black and frequently tinged with red. The thorax has four prominent black spots and numerous smaller ones. The wings are glossy, with dark veins. The larvæ make their appearance soon after the leaves have unfolded, and unless destroyed, devour the entire foliage of the bush in a few days. Frequent sprinkling of the bush with powdered

white hellebore or carbolate of lime is an effective remedy. A weak solution of copperas or a strong suds made from carbolic soap will also destroy the worms.

The currant span worm, which is the larvæ of a small yellow moth with dark, often nearly transparent, blotches on the wings, can also be destroyed by the use of hellebore.

The Cabbage Butterfly.—The most destructive species of this butterfly was imported from Europe, and has flourished in this country until it is one of the most troublesome pests with which the market gardener has to contend. Nearly everyone is familiar with the cabbage



CABBAGE BUTTERFLY.
(MALE.)

worm, while but few recognize the white butterfly which is its parent. The wings expand about one and one-half inches. In the fore wing of the male there is a single black spot, while that of the female has two such spots, and a small patch

of black at the apex of the wings. The under side of the wings is a little darker than the upper. These butterflies appear early in the spring and may be seen flying about on a bright day. The eggs are laid in almost any plant of the mustard family. The first brood comes to maturity within a month, and these deposit their eggs in the young cabbage plants. The caterpillars are of velvety green color, with a yellowish stripe down the back and another along each side. When full grown, the caterpillar is about an inch long and a little larger

than the top of a small penholder. This caterpillar is very destructive to the plants, as it feeds upon the heads when they are forming. Hand picking, sprinkling with a weak solution of Paris green (one pound to 150 gallons of water), and capture of the butterflies by the means of gauze nets, are the most effective remedies. The caterpillar changes to a chrysalis in September. This may be found under some board or stone, attached by threads spun over the back. It is a good plan to place loose boards on the ground among the plants, and in this way collect the chrysalides and destroy them.

Cutworms.—The cutworms are sly, nocturnal creatures and are no respecters of plant growth. They attack young plants without regard to kind or quality; cut them off with their jaws and feed upon the juicy interior of the stem.

Most cutworms are cylindrical, tapering slightly toward each end, and having a horny crescent-shaped plate on the segment preceding the head. They are usually a bright green, or ash gray with dark stripes along the body, which may be smooth or slightly warty. When at rest, they may be found curled up under sticks, stones, or boards, left in the garden.

The parent of the cutworm is the dart moth, of which there are several species. The dart moths are so named from their rapid, headlong flight. The species most frequently seen is commonly known as the "moth-miller," and is found around lights or attempting to get in through the windows after the house is lighted in the evening. It has a dull brown color, and when at rest is nearly triangular in form.

Young plants are best protected from cutworms by

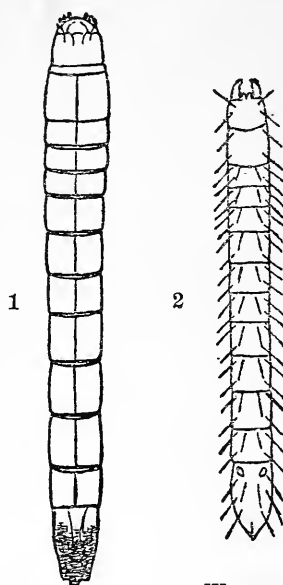
placing a cylinder of thick paper or tin about the roots and extending it downward to the depth of five or six inches. Old fruit cans with the ends knocked out make excellent cases for this purpose. Whenever cutworms appear, they should be found and killed, as there is no means of protecting plants from them by the use of chemicals.

The May Beetle.—This insect is common on pleasant evenings in early summer. Strange to say his visits are not always enjoyed by those upon whom he calls, though he is perfectly harmless. This beetle is too well known to need description, but the larvæ are not always recognized by those who are acquainted with the parent. The larvæ are the common white grubs found in the garden. They are short and nearly as large as the little finger, with six legs near the head. The skin is so delicate that the organs of digestion can be readily seen through it. This May beetle remains in the larvæ stage for three years, and the large grub during the last year destroys many plants. It usually attacks the roots deep down in the earth, and a thrifty vine or other plant suddenly wilts and dies. The only remedy is to hunt for the grub and destroy it. These grubs are frequently turned up by the hoe and spade, and should be destroyed whenever found.

Wireworms constitute another pest. They are the larvæ of a class of beetles known as snapping beetles from their power of throwing themselves up in the air in order to regain a right position whenever they are placed on their backs. The most common wireworm is readily recognized by his smooth, reddish-brown cylindrical body tapering at each end. (Figure 1.)

The wheat wireworm is covered with coarse hairs, and feeds upon young grain plants. (Figure 2.) These worms are not easily destroyed as but very few substances not injurious to the plants can be used for this purpose. Moles and small birds feed upon them and destroy a large number. If slices of potato or turnip are strewn about the garden, they will attach themselves to the under side, and most of them can be collected and removed from a garden in this way.

The Army Worm.—This worm is essentially a field insect. It is common every season, but occasionally appears in such numbers as to overrun entire counties. When this occurs, acres of wheat, oats, barley, and grass are destroyed. In fact, it leaves behind no green thing upon which it can feed. The army worm is a cousin to the cutworm, since it is the caterpillar of a night-flying moth which closely resembles the dart moth. The eggs are probably laid near the roots of grasses such as timothy and other similar cultivated species. The army worm is about an inch and a half long, and resembles the cutworm in appearance. It is dark, with a light interrupted line along the middle of the back, and a light thread-like line on the sides. This worm takes its name from the peculiar manner in which myriads of these caterpillars march together in columns, side by side, steadily surmounting any obstacle to their progress. A variety of



WHEAT WIREWORM. WHEAT WIREWORM

this worm in the South is known as the cotton worm, and occasionally destroys the cotton crop over large areas.

Preventive measures are the best in dealing with this caterpillar. If the stubble of grass and wheatfields is burned, the eggs and most of the cocoons are destroyed. This should be done whenever the worms appear in such numbers as to attract attention. Their onward march can be checked by digging a ditch about two feet deep, and, after they have fallen in, burning them with straw or other combustible material.

This article mentions only a few of the numerous insects destructive to vegetation. You should find many others and study them for the purpose of learning the most effective means for preventing their ravages. Millions of dollars are lost in our country every year from the destruction of or injury to crops by noxious insects, and much of this loss might be prevented if farmers and gardeners would become acquainted with the habits of these enemies, and in this way discover the most effective measures for exterminating them.



GENERAL HISTORY NOTES.



THE ancient Teutonic religion . . . taught that only those who fell by the sword could enter Walhalla, the palace of the great god Woden, . . . where they fought and feasted forever. Those who died of illness or old age went to the land of ice and fogs. . . . Our week-days perpetuate the names under which some of the chief Teutonic gods were known. Thus we have the *Sunday*, *Moon-day*, *Tui's-day*, *Woden's-day*, *Thor's-day*, *Freya-day*, and *Saeter-day*.' — Barnes's *General History*.

About the middle of the 9th century, the *Normans* or Northmen, a bold and enterprising race from Norway and Denmark, commenced a series of piratical voyages to different parts of Europe. They penetrated to the interior of France and laid siege to Paris, whereupon the King, Charles the Simple, granted to Rollo, their leader, a large district in the north of France which they named after themselves, *Normandy*. This was in 911, a century and a half before a descendant of Rollo earned the title *William the Conqueror*.

“The character of Louis IX of France, or Saint Louis (1226–1270), is one of the noblest that occurs in mediæval history. He possessed all the virtues of his age untarnished by its vices: he was brave without cruelty or violence, pious without bigotry or weakness. . . . He commands our admiration by his rare disinterestedness,

his bold attempt to rule his actions as a monarch by the rigid maxims of private honor, and by the great good sense that tempered his devotion, and that never allowed him to sacrifice humanity or justice to the interests even of that church which he revered." — Crowe's *History of France*.

Louis died of the plague at Tunis, while on his way to Palestine, during the eighth Crusade, and was canonized in 1297 by Pope Boniface VIII.

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Stephen, King of England (1135–1154), had no executive ability. During his reign, the robber barons flourished. “They built strong castles and filled them with armed men. From these they rode out as robbers, as a wild beast goes forth from its den. Whatever money or valuable goods they found, they carried off. They burned houses and sacked towns. If they suspected any one of concealing his wealth, they carried him off to their castle; and there they tortured him to make him confess where his money was. They hanged up men by their feet, and smoked them with foul smoke. . . . They put men into prisons where adders and toads were crawling.”

LIFE IN THE MIDDLE AGES.—In London, there were frequent fires and drunken riots; rich young men would scour the streets at night, molesting the citizens. “Among the rich, glass windows were coming into use, but chimneys were unknown; woven fabrics were too costly for common use; and the very palace of Thomas à Becket was strewn with rushes. The sheepskin was the dress of the poor as the catskin was of the rich.”—Pearson's *England in the Early and Middle Ages*.

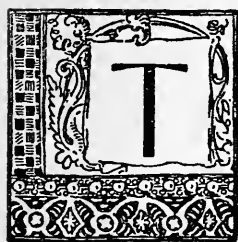
“An examination of the life of any people will reveal certain permanent features common to the history of all

civilized nations. There will be found five well-marked phases,—a political, a religious, an educational, an industrial, and a social phase. . . . Each has a great organization, called an institution, around which it clusters, and whose purpose, plan of work, and machinery are peculiar to itself. For political ideas, the center is the institution called government; for religious ideas, the church; for educational and culture influences, the school; for industrial life, occupation; and for social customs, the family. . . . From this, . . . certain inferences may be drawn: 1. That the phenomena of history may be grouped into five different classes; that history is not confined to the study of politics, but includes the entire life of the people. 2. That there are five lines of growth that move on down through the life of a people and give linear continuity to the subject, and, therefore, a clue to the method of its organization. 3. That each of these phases of a people's thought clusters around and becomes embodied in a great and permanent institution. 4. That the more advanced phases of sentiment do not for the time become embodied in either law or custom, and thus they form germs that may produce a conflict between what is and what ought to be."—Mace's *Method in History*.



HOW AND WHAT TO REMEMBER.

(Read in connection with fourth number of Pedagogics and Methods.)



THE quotation at the beginning of this number of pedagogics states a fundamental truth, but the difficulty with many teachers lies in their not fully understanding how knowledge is "incorporated into the life."

Poetic and other statements about memory are responsible for many of the erroneous ideas about this very important but often much abused power of the mind. These statements compare memory to a room whose walls are hung with beautiful pictures, a chest with many drawers, a cabinet of pigeon-holes, a well-arranged storehouse, and occasionally, an attic filled with rubbish. These conceptions may be beautiful poetic fancies, or, in proper relations, help to form good rhetorical figures, but they are very poor psychology. Memory is a function of the mind. It has no special center in the brain like sight, hearing, or speech; it has as many centers rather as there are avenues of knowledge, and sources of mental activity. Memory develops, as the other mental powers develop, and is so closely associated with them that its efficiency depends very largely upon their inherent strength and their training.

We incorporate into our lives those things which we put ourselves into. There is no exception to this law; here action and reaction are as surely equal as they are in

the physical world. The problem which the teacher must solve is how to lead the child to put his life into the knowledge which she wishes him to acquire. In order to solve this problem successfully she needs to bear in mind the following facts:—

1. There are only two sources from which all knowledge is obtained; the world about us, and the self-active mind.

2. All knowledge which is incorporated into the life comes through *both* of these sources.

You wish to give a child the idea of a foot rule. He already has the idea of length obtained through his past experiences. You give him the foot rule. This is the external source of the idea. Before the rule can have any definite meaning to him, however, he must relate it to the idea of length already in his mind. In doing this he forms a judgment and decides that the rule agrees with this idea. The self-active mind has reacted upon the impression made through the senses, and the result is a greater significance to both ideas. But the process is not yet complete. Before the idea of foot can be fully incorporated into the child's life it must be compared with other measures,—the inch, the yard, the rod,—hence the child is directed to apply his rule to his desk, the table, the blackboard, the wall, etc. He is requested to draw it and to cut from paper objects having the same length. Finally, when the idea is incorporated into his life, he can recall at will the definite mental image of this standard of measure. If his hand as well as his eye has been trained, he can reproduce the measure at will.

This is simply an illustration of the way in which the mind works in acquiring all knowledge. The order is,

observation, thought, judgment, application of the idea. The last is particularly necessary since it is the test of accuracy.

The use of these sources of knowledge by children is made easy or difficult according to attending circumstances. Those which are favorable, are—

1. Cheerful surroundings. We all work to better advantage and with greater enthusiasm when in a happy frame of mind. This is true to a greater extent with children than with adults, because their surroundings make a stronger impression upon them.

2. Interest in the subject. If the child is made to feel that the idea presented fills a need in his life,—in other words, that it will increase his power to do,—he becomes interested in it at once, and gives his entire energy to mastering it. Ideas should be presented in such a manner as to enable the child to see a vital relation between them and his power to do something.

3. Healthful physical condition. Good health is essential to vigorous mental activity, and sickly children can accomplish but little. Freedom from fatigue is also essential to successful work. The subjects requiring the greatest effort should be treated at those periods following rest.

4. Subjects within the comprehension of the child. Pupils take little or no interest in that which they can not understand, and no mental reaction follows its presentation.

When knowledge has been incorporated into the life, how is it recalled? The function of memory is twofold: to retain and to recall. Introspection teaches us that all of our ideas are related in some way. A careful analysis

shows that these relations may be grouped into two classes: those which are associated together in time and place, and those which are associated by their resemblance. Memory brings our past experiences into consciousness, and we frequently speak of them as mental images whether they were experienced by the eye, the ear, the touch, or any other organ. These images are so associated that one tends to call up another, and they frequently crowd into consciousness in rapid succession.

Memory may be either spontaneous or voluntary. Scores of mental images whose presence is not easily accounted for appear in consciousness every day; they come unbidden, sometimes even against our desire, and are victorious in a struggle to keep them out. We also have our daily experience of recalling with difficulty the special ideas we need, and sometimes of failing altogether. It is this voluntary effort to recall that needs the attention of teachers. A few illustrations will make this plain.

The more relations an idea has, the more sources there are for its recall; consequently the more clear and complete the knowledge, the better the memory of it. Have your pupils use all sources possible in acquiring an idea, bring every sense to bear upon it, use it in every way they can, talk it over among themselves, and tell it to their parents at home. You may have difficulty in remembering names. If so, when introduced to a person, speak the name over to yourself, tell it to someone else, and write it down; each act tends to make it more completely your own.

Individuals differ in the ease with which they establish certain relations. One habitually uses the relations of time and place; another that of sound; and a third that

of identity or similarity. All of these are helpful, but that of similarity is by far the most valuable. Train your pupils to establish relations between their ideas.

The proportion of pupils in a class who rely upon these different relations in recalling experiences can be shown by a simple experiment. Refer to some quotation from the reader or language book, and ask how many first think of it as occurring on the right or left hand page of the book and at a given place on the page. Again ask how many think of it first in connection with something which occurred in the lesson when it was first recited. Finally ask to how many it brings to mind something similar in thought or appearance. If you have never tried the experiment, the answers may surprise you.

The mental image appears in consciousness gradually, very much as the negative appears upon the plate under the photographer's treatment. The strongest lights and shadows appear first, then those a little weaker, but closely associated with the leading features of the picture, and finally the minute details appear and complete the picture. The most striking features of the mental image appear in consciousness first, and are followed by those closely associated with them, and these by details of less importance. In our efforts to recall the image we usually employ all the means of association at our command, and it frequently requires some minutes to complete the task. The successful teacher will bear all these things in mind.

Any power or function of the mind is weakened by overwork or wrong use. Perhaps none has been more abused than the memory. Many pupils have had their memories permanently injured by overloading with worthless detail, such as dates of the minor events in history.

In order to be of value the memory should be exact, and that it may acquire this habit of accuracy much should be memorized word for word; but this matter should be carefully chosen, and should have some significance in the child's life. Memory gems from standard authors, beautiful songs, and useful proverbs and maxims, are the most desirable material for this work, but these should be explained so that the pupils will understand what they memorize.

Pupils should not be required to memorize history, geography, and language lessons so as to recite them by repeating the words of the book. Never allow pupils to memorize or learn by heart what they should learn from observation and reason. This applies particularly to work in arithmetic and grammar.

Pupils should incorporate into their lives the fundamental principles and laws of the subjects which they study, the great facts of knowledge, and some of the best sayings of our greatest authors, and they should do this in such a way that each acquired idea strengthens the mind for further achievement. They should also learn where information can be obtained and how to use such sources of information. The memory should never be made to take the place of the accountant's ledger or the merchant's memorandum book.



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HOME STUDENT'S AID



SUPPLEMENTING THE
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READING FOR INFORMATION.

There is a certain phase of reading which might be called the purely intellectual, wherein the reader buries himself in the thought of the selection and is content only when he has gained a complete mastery of the ideas of the author. Such reading is called study, it is the reading we give our textbooks, the reading a lawyer does in preparing for his cases, the reading a critic should apply to the article he intends to review. Absorbed in what the author has to say, the reader gives little heed to the manner in which it is said. Style counts for little, beauty is unheeded and emotion unfelt. Fiction and poetry call for little such reading; science, history, and mathematics call for much. It is the kind of reading that trains the intellect and makes the scholar. When a person has once acquired the art of going to the bottom of what he reads, when he is skilled in acquiring the full thought from a printed page, he can bid farewell to teacher, to school, to university, for the world is full of books and he is their master. The chief value to a student of this course of home

study is the power it gives him over a collection of books, which Carlyle says is the true University of these days.

To acquire the art of reading in this manner requires time, patience, and a systematic course of training. But it is not wholly new work; it is a course we have been pursuing to a greater or less degree ever since we entered our first school or learned our first lesson at mother's knee. We have grown careless, it is true, have been content to skim over the surface of things, and take the light rewards that are easily won. We never have fixed upon ourselves the habit of mastery, for mastery is a habit. While we know that many a time we shall read for pleasure only, yet our pleasure will be vastly increased if we think through the subject on which we read.

The mind is a most faithful and energetic servant. We set it a task and watch its performance of the task. We ask it to repeat the operation a few times, and lo! we find it working away independently of our will and almost below the range of our consciousness within the very limitations we have prescribed. It has formed a distinct habit of thinking.

This is a trait of which we should take advantage, and teach the mind to work systematically and faithfully at a selection till the thought is mastered. We should adopt a definite plan in our reading (study) and follow it thoughtfully, painstakingly in minute detail under the conscious guidance of our will till a habit of thinking is fixed, till we become students in the real sense of the term.

Now here is a plan which, followed persistently for a while, will certainly fix the habit we have referred to. It will be best understood by applying it at once to a selection we wish to read. This is from Thomas Carlyle:—

“There are two errors, widely prevalent, which pervert to the very basis our judgments formed about such men as

Cromwell; about their 'ambition,' 'falsity,' and such like. The first is what I might call substituting the *goal* of their career for the course and starting point of it. The vulgar historian of a Cromwell fancies that he had determined on being Protector of England at the time when he was ploughing the marshlands of Cambridgeshire. His career lay all mapped out; a program of the whole drama; which he then step by step dramatically unfolded, with all manner of cunning, deceptive dramaturgy, as he went on,—the hollow, scheming 'υποκριτης or Play-actor that he was! This is a radical perversion; all but universal in such cases. And think for an instant how different the fact is! How much does one of us foresee of his own life? Short way ahead of us, it is all dim; an unwound skein of possibilities, of apprehensions, attemptabilities, vague-looming hopes. This Cromwell had *not* his life lying in that fashion of Program, which he needed then, with that unfathomable cunning of his, only to enact dramatically, scene after scene! Not so. We see it so; but to him it was in no measure so."

I. We read the selection through to the end to get a general idea of it.

II. We read again for the words that are new or whose meaning as here used is peculiar, and having found them, we determine from dictionary or elsewhere their force and meaning. *Dramaturgy*, we find as we suspected, means the science of acting, of dramatic representation; 'υποκριτης is a Greek word, we know, and looks so familiar that we turn to the word *hypocrisy* in the dictionary, and find it to come directly from a Greek word which originally meant *acting* or *oratory*, so Carlyle has merely translated it for us. A *hypocrite* was originally a *play-actor*. *Attemptabilities* is a rare word, but it means *things that may be attempted*, and

the Century Dictionary quotes this very passage from Carlyle to illustrate its use.

III. We refer again to our passage to see if there are any phrases or combinations of words that are peculiar in their significance. Among others we find, *Short way ahead of us*, and decide that Carlyle has merely omitted *only a* at the beginning of the phrase, trusting us to supply it. The *vulgar historian of a Cromwell*, means merely *the common, the ordinary historian of any great man*.

IV. What allusions does Carlyle make that demand reflection? *Cromwell*; who was Cromwell? *Protector of England*; what epoch of English history is alluded to?

V. What figurative language is used and what is the basis of the figures? *The goal of their career*; this calls upon us to recall a race, its beginning, its long trying course, and the exciting finish at the goal. *An unwound skein of possibilities*; we must see the skein of yarn unwound, hopelessly tangled. *Unfathomable cunning*; we must think of a cunning so deep that were it a sea no sounding line could reach its bottom.

VI. Are there any completed sentences that seem vague to us? *Not so*, is very much abbreviated, but its meaning is clear.

VII. Now we must find and write out the central thought of the entire paragraph. What is it? When the paragraph is reduced to its lowest terms, what is the result? In this case, is it not something like the following? "Where we charge a great man like Cromwell with being false and ambitious, we are liable to err in assuming that he deliberately planned his career, foreseeing every step of it, and then acted his part to the end." Can we reduce it still farther? "To charge a man with deceit and ambition is wrong when it is

assumed that his career was the result of a definite plan." We might express the central thought in many ways, none quite exact but all reasonably fair.

VIII. Now we should outline in writing the thought of the paragraph, trying to get all the important ideas and to arrange them logically. Our outline may be like this:—

Errors that pervert judgment when we call great men like Cromwell false and ambitious:—

First.—Substituting a goal for a starting point and a course, i. e., assuming

- (1) that he meant to be a Protector when he was a ploughman,
- (2) a play mapped out which he acted hypocritically.

This is erroneous because no one of us can foresee his own life, therefore Cromwell could not foresee his life, and should not be called false and ambitious.

Second.—(If we read further in Carlyle's *Heroes and Hero Worship*, we will see that the second error is that we exaggerate the ambition of great men.)

IX. Now one or two slow, thoughtful readings of the paragraph, with attention to the peculiarities of his style, are needed to give a last complete idea of the thought in the very way Carlyle gives it.

If we should read a few paragraphs every day in this close manner, it would not be long till we should find that naturally our minds followed this order, that our attention did not waver so much, and that the conscious detailed labor would grow gradually less, so that we could drop the written outlines, and depend upon our minds to analyze and classify.

This analytical reading is so important to teachers and to children in the school that it is worth while to sum up

and present here the various steps which lead to mastery of thought in any selection.

- I. The original reading for general scope.
- II. A knowledge of words in their special meaning.
- III. A knowledge of phrases as used.
- IV. An acquaintance with allusions or references to
 1. Historical events and personages.
 2. Literary masterpieces.
 3. Scientific truths.
 4. Biblical events.
 5. Mythological creations.
- V. Understanding of figures of speech. This involves a knowledge of the basis of comparison or relationship.
- VI. Knowledge of the meaning of the sentences, the units of thought.
- VII. Mastery of the paragraph, the group of related sentence units.
- VIII. The determination of the chief or leading idea in the selection and its phrasing in the reader's own language.
- IX. The analysis, grouping, and summarizing of the ideas in the selection.
- X. The final readings for style and completed elaborate thought as the author phrases it.

HOW WE ELECT A PRESIDENT.

(Read in connection with fifth number of Constitution.)



THE first steps toward the choosing of our chief magistrate are taken nearly a year before he assumes his seat as president of the United States. The preliminary work begins in the early spring before the fall elections, when managing committees meet

in private party caucuses to discuss available party candidates.

The smallest unit for party organization and voting is the primary. The primary is made up of the legal voters belonging to the same party, and residing within the limits of a certain political division. In the country the township constitutes such a division, but in a city it may be a ward, a precinct, or an electoral district.

The work of the primary is to elect a committee whose duty it is to look after the party organization within the section represented by the primary, and to elect delegates to a larger convention, usually a county convention. County conventions elect delegates to state and district conventions, and these elect delegates to the National Convention in which the candidates for president and vice-president are nominated. From this arrangement it is easily seen that the primary is the pivot on which the whole of our election machinery turns. If good men are elected at the primaries, conventions of a high character are assured; if unscrupulous men are chosen, the work of the conventions is dominated by demagogues and machine politicians, much to the detriment of the party and country.

Since the citizen, if he is a good party man, must ultimately vote for the candidate whom the primary and its resulting conventions present to him as a party representative, it is his duty to attend the primary meeting in order to help in the choice of honest men. This is the duty the good citizen most often neglects, and largely because of this neglect the professional politician has arisen.

Each state, for convenience in voting for representatives in Congress, is divided into congressional districts. The congressional district conventions on presidential years choose delegates to represent the district at the National Convention; while the state convention chooses delegates to represent the state at large.

The National Convention, a party expedient for concentrating votes, is a regularly constituted representative body composed exclusively of delegates, twice as many as there are senators and representatives, each of whom has been elected at a party meeting in his own state, and brings with him his credentials. This convention has two objects, the first subservient to the second: "The formal declaration of the principles, views, and practical proposals of the party, and the choice of its candidate for the executive headship of the nation." It meets in the June or early July preceding the November elections. It is called together by a National Committee elected, one member by the delegates of each state, at the last National Convention.

The convention is called to order by the chairman of the National Committee. A temporary organization is effected; a chairman, clerks, secretaries, and committees for various purposes are appointed, and the rules which are to govern the convention are adopted. The temporary chairman is often chosen because of his interests, and the importance of

his position consists in his being able to name the committees. The committee on credentials and contested seats examines the titles of the delegates and often does what it can to exclude those who are suspected of an intention to oppose the plans of the leaders. After the temporary organization is completed the convention adjourns until reports are ready to be presented.

The next sitting usually opens after the customary prayer, with the appointment and installation of the permanent chairman, who inaugurates proceedings with a speech. The report of the committee on resolutions is next presented. This report contains what is called the platform, as well as a long series of resolutions embodying the principles and program of the party. Next follows the nomination of candidates. The roll of states is called in alphabetical order, and when the state is reached to which one of the aspirants belongs, a prominent delegate of that state mounts the platform and proposes his name in a speech extolling his merits. Other delegates second the nomination, and then the roll call goes on until all the states have responded.

Next comes the voting. The clerk calls the roll of the states, and the vote of each delegation is usually announced by its chairman; for example, "12 for A; 25 for B," etc. The delegates from each state sit together during the convention, and if the vote of any state as given is challenged, the roll of the delegates is called and they vote independently. Under what is known as the "unit rule" the delegates are compelled to cast their votes for the candidate whom the majority of the delegation supports. This rule, when used, often gives the large states like New York and Pennsylvania an opportunity to control the nomination. In the Republican National Convention a majority of the votes of

all the delegates nominates the candidates, but the Democratic convention requires two-thirds of the votes of all delegates. The nomination of vice-president follows that of president, and usually requires but a short time.

As the people do their nominating through representatives called delegates, so they do their electing or final voting through representatives called electors. Originally, presidential electors were chosen by congress or state legislatures. It is since the system of electing them by the people of the different states, on a general ticket, has been adopted, that nominating conventions have been necessary. The original object for which these electors were provided for in the constitution,—that of deliberating on the character and fitness of the candidates for the highest office our republic has to give,—has been largely defeated by the practice of political parties arrayed against each other.

Each state is entitled to as many presidential electors as it has representatives and senators in congress. These electors are nominated by the district and state conventions at the same time that delegates to the National Convention are chosen. The acceptance of this nomination binds the elector to vote for the candidate of his party. On the Tuesday following the first Monday in November of the year in which a president and vice-president are elected, the voters meet in their respective polling places and vote directly for these electors. The list of electors receiving the largest number of votes in any state is declared elected, and determines the presidential vote of that state. The electors of all the states constitute the Electoral College.

The presidential electors of the various states meet at their respective capitals on the second Monday in January following their election, and cast their votes for president

and vice-president. They are required to make distinct lists of votes of all persons voted for as president and vice-president. Three copies of the vote are prepared; one is sent to the president of the senate at Washington by mail, the second is sent by a special messenger, and the third is deposited with the judge of the United States district court for the district in which the electors meet.

The senate and house of representatives meet together on the second Wednesday of February following the day on which the electors vote, and count the votes and declare the result.

I. Nomination of Party Candidate.

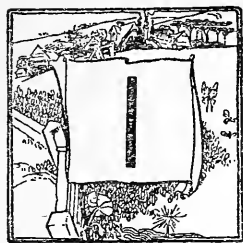
- a. Primaries choose delegates for District and State Conventions.
- b. District and State Conventions choose delegates for National Convention.
- c. National Convention.
 1. Chooses National Committee which manages election.
 2. Draws up Party Platform.
 3. Nominates candidates for President and Vice-President.

II. Election of President.

- a. Electors chosen by States on general ticket on Tuesday after the first Monday in November.
- b. Meeting of Electoral College at State capitals on second Monday in January after election.
- c. Counting the electoral votes on the second Wednesday in February following, by both Houses of Congress.

RECENT TERRITORIAL ACQUISITIONS.

(Read in connection with fifth number of History of the United States.)



IN 1898 the United States added to itself Porto Rico, the Philippines, and Hawaii, and assumed a protectorate over Cuba. With the acquisition of this territory began "Our Island Empire"; by the acquisition of these tropical islands the United States has vastly increased her commercial advantages, multiplied her natural resources and products, added to herself millions of people strikingly different from those of the republic, and consequently taken to herself vast responsibilities and met most perplexing social and political difficulties.

The natural features of Cuba and Porto Rico are very much the same. The climate of Porto Rico is more healthful—less malarial—and agreeable than that of Cuba. The smaller island is only one-twelfth the size (area 3,668 square miles) of the larger, but its population is six times as dense. Nearly the whole of the surface of Porto Rico is under cultivation and produces a great diversity of crops,—it is especially suited to the general purposes of farming and has 20,000 small holdings,—while only one-tenth of the arable soil of Cuba has been worked.

There is an immense future for sugar raising in Cuba, as the soil is capable of producing a larger amount of cane to the acre than that of any other country in the world; the sugar yield in Porto Rico is also very large. The soil is not likely to be soon exhausted as the native farmer does the least work possible for securing a crop. Tobacco is at present the only

flourishing product in Cuba, its superior quality making a steady demand for it all over the world. The only manufacture in which any energy is displayed is that of converting tobacco into cigars and cigarettes to supply the great and increasing home and world demand. The tobacco produced in Porto Rico is most of it exported in the shape of Havana cigars. Of the staple foods rice is the most important and the most widely cultivated. It is claimed that the oranges of Porto Rico are the finest of their kind in the world. Cocoa, which yields the bean from which comes chocolate, is native to this island.

The commerce of these islands with the United States bids fair to gain a great development. The three leading crops, sugar, coffee, and tobacco, furnish the main elements of trade. Havana harbor, one of the finest in the world, with its noble entrance and deep and spacious interior, is busy with ships of all nations. Two-thirds of the sugar of Cuba is sent to the United States. In 1897 the total value of that product was \$11,982,473. The amount of coffee sent abroad from Porto Rico averages 25,000,000 to 30,000,000 pounds per annum. There is little interior trade in Cuba, because of lack of roads, but Porto Rico is much better supplied.

The Hawaiian group of islands, twelve in all, lie just within the tropics between America and Asia, 2,100 miles from California and 3,400 miles from Japan,—a highly important position in the rapidly growing commerce of the Pacific. Most of the islands are small, four are barren and uninhabited. Their total area is 6,740 square miles; Hawaii, the largest, has two-thirds of this area.

The native population of the islands has constantly decreased since 1778; sanguinary wars, the practice of infanticide, and later the ills that sometimes attend the introduction

of civilization, are responsible for this decrease. Such diseases as the measles, introduced there by the white people, have been fatal to the natives. The development of the sugar-cane culture in the period succeeding 1878 brought a rapid increase in the foreign population. The cane grows there with extraordinary luxuriance, and is unusually sweet. There are 70 monster plantations in the islands, one of 40,000 acres being the largest in the world. The trade winds constantly bring fresh and pure breezes to the islands and so modify the climate—making it healthful and salubrious—that Americans and Europeans can work in the open air at all seasons of the year, as they can not do in the same latitudes elsewhere.

American enterprise has opened up the islands by roads and railways, brought street cars into Honolulu, the capital, introduced many vegetable products, and established an inter-island commerce by steamship. Nearly all the foreign trade is with the United States.

The Philippines were ceded by Spain to the United States with the agreement that \$20,000,000 should be paid as a recompense for improvements made in the islands.

The Philippine archipelago is an extensive group of islands, about 1,200 in all, extending from $4^{\circ} 45'$ to 21° north latitude, lying off the southeast coast of Asia. The port of Manila, the capital city of the group, is 630 miles from Hong Kong. Luzon, the largest of the islands, is about the size of Ohio. The volcanic formation of the islands is everywhere manifest; several of the volcanoes, notably Taal, the largest, are still active.

Prominent among the natural productions of the Philippines is the valuable fiber known as Manila hemp. The plant is native to the region and never has been successfully cultivated elsewhere. Its culture is the least troublesome form

of Philippine agriculture, and gives the best results in comparison with the expense. A large per cent of this fiber comes to the United States. It is used principally in the manufacture of sail-cloth, mats, and cordage. In Paris they make carpets, tapestries, hammocks, and even bonnets out of this hemp. The stout brown wrapping paper known as Manila paper is made from old rope.

The sugar of the Philippines is the poorest in the world because of the antiquated methods of culture. There are over seventy varieties of bananas there. The very existence of the Filipinos depends upon the products of the rice fields, as rice is the universal food substance. Cigar-making stands at the head of the manufactures; in fact, it is the only one of any importance.

The population of these islands is not known. It is estimated at 8,000,000 of which 5,000,000 live in Luzon. There are eighty native tribes, each with its special habits, grouped as Negritos, Mohammedan Malays, Pagan Malays, and Civilized Malays. There are two principal races of the civilized tribes: the true Filipinos who form the great bulk of the population,—the Tagals of the North, speaking the Tagalog language, and the Visayas of the South, speaking a Tagalog dialect. These civilized tribes were called Indios or Indians by the Spaniards to distinguish them from the Moros or Mohammedans of the most southerly islands, who are born pirates.

The natives have all the strongly marked characteristics of the Malay races. They make good soldiers, as they are stoics and fatalists; as sailors they have no superiors. Like the native Hawaiians they are famous swimmers, being absolutely without fear of the boiling surf. They will lie without compunction, and are great gamblers, but are very kind in their family life. They live in raised bamboo huts and are

scrupulously clean. Every village has its bath, and they are constantly bathing, washing, and scrubbing.

The most promising part of the native population is the 200,000 half-breeds, Mestizos, born of native mothers and European or Chinese fathers. The favorite pursuit of these people is retail shop-keeping, and because of their frugality, industry, and perseverance, they have become very influential and have almost a monopoly of the trade.

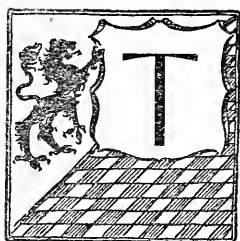
Manila, the central port of the Philippine archipelago, is to-day one of the great commercial cities of the eastern world. The lack of roads in the interior of the country has rendered inland trade next to impossible. Highways and railroads are sadly needed.

Hawaii is organized into a regular territory of the United States, but the government of the other islands is in a formative condition, being divided between the military and civil authorities. Porto Rico is under the direction of a governor appointed by the president, and has a local assembly with limited power and a judicial system adapted to its needs. Cuba is under military government administered by the United States, but is to become an independent republic under our protection as soon as the inhabitants are able to form and sustain a government of their own. The civil affairs of the Philippines are administered by a special commission appointed for that purpose. Under the direction of this commission a system of local government and laws suitable to the needs of the inhabitants will be provided. In all of the possessions schools have been established upon the American plan.

ITEMS.	HAWAIIAN ISLANDS.	PHILIPPINES.	CUBA.	PUERTO RICO.
Area sq. mi.	7,000.	140,000.	43,220.	3,550.
Rivers.....	Small rivers numerous; help irrigation.	Very few and small.	One navigable; all short.	Numerous: many navigable.
Mountains.	Mauna Kea, 13,900.	Mayon, 8,000.	Pico de Turquino, 7,750.	El Yunque, 3,688.
Population.	110,000.	8,000,000.	1,600,000.	800,000.
Climate.....	Frequent showers; wind prevents excessive heat.	Fresh and cool, Nov. to Mar.; very hot, Mar. to June.	Hot on coast; healthful in the cooler season.	Hot, but not unhealthful; delightful.
Products...	Sugar, rice, coffee, fruits.	Hemp, sugar, coffee, tobacco, rice, fruits.	Sugar, tobacco, coffee, rice, fruits.	Sugar, coffee, tobacco, rice, fruits.
Exports.....	1899, \$22,600,000.	1896, \$33,000,000.	1896, 94,000,000.	1896, \$18,000,000.
Imports.....	1899, \$19,000,000.	1896, \$29,000,000.	1896, \$66,000,000.	1896, \$18,000,000.
Industries..	Agriculture and grazing.	Agriculture, grazing, mining.	Agriculture, grazing, mining, lumbering.	Agriculture and grazing.
Miles R. R..	72.	120.	1,000.	137.
Capital	Honolulu, 30,000.	Manila, 350,000.	Havana, 220,000.	San Juan, 25,000.
Other City.	Hilo, 12,000.	Lipa, 40,000.	Santiago, 60,000.	Ponce, 40,000.

PROPORTION AND EQUATIONS.

(Study in connection with fifth number of Arithmetic, and fifth number of Elementary Algebra.)



THE solution of practical problems is obtained by a comparison of values; hence ratio enters into all such solutions. The average pupil, and occasionally the teacher, looks upon proportion as a sort of juggling with figures; when in reality we use the method of proportion in the solution of nearly all our practical problems. Its use is so common that we fail to recognize the method employed.

The equation serves the same purpose in algebra that proportion does in arithmetic. By means of either, the unknown quantity in a problem can be determined quickly and easily; while the passing from one to the other is but a step. A proportion expresses an equality of ratios, while an equation has larger latitude and may express an equality of ratios, products, or sums and differences.

The expression $a : b :: c : d$ means that $\frac{a}{b} = \frac{c}{d}$. If expressed numerically, and we consider a to equal 6, b 2, c 12, and d 4, we have $6 : 2 :: 12 : 4$, or $\frac{6}{2} = \frac{12}{4}$ or $3=3$.

By clearing these equations of fractions we find that in the first case $a \times d = c \times b$, and in the second $6 \times 4 = 12 \times 2$. In each the product of the means is equal to the product of

the extremes. (See arithmetic, note (5) I.) Make several proportions and change to equations, until you have demonstrated the truth of this principle and can make the change readily. Changing a proportion to an equation is a sure test of its accuracy; if the products are not equal, the proportion is wrong.

In the problem,—since 2 apples cost 8 cents, what will 16 apples cost? the result is evidently one of ratio, and the ratio of price must be equal to that of apples. $2 : 16 :: 8 : (64)$. The application of this method is so common that we scarcely think of such problems as problems in proportion. Such problems can be readily solved by an equation, by letting some letter, as x , represent the required number. In the above problem let x equal the cost of 16 apples, and we have the proportion $2 : 8 :: 16 : x$, and the equation $2x = 128$ or $x = 64$, the cost. Pupils soon become enthusiastic in their use of proportion or of the equation when they see what can be accomplished.

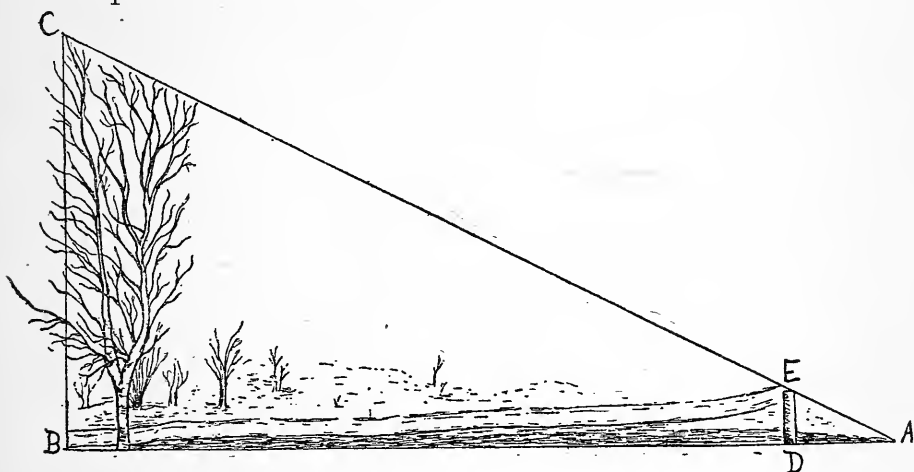


FIG. 1.

Near your schoolhouse is a tree whose height is unknown. A post whose height has been measured stands in the sun.

At a certain hour measure the shadows cast by the post and the tree. The lengths of the shadows are proportional to the lengths of their respective objects, and we have $AD : AB :: DE : BC$. Let x equal the height of the tree, and 5 feet represent the height of the post. (Fig. 1.) If the post's shadow measures 6 feet, and the tree's 55 feet, we have the proportion $6 : 55 :: 5 : x$, or the equation $6x = 275$, $x = 45\frac{5}{6}$, hence $45\frac{5}{6}$ feet is the height of the tree. Apply this same principle to finding horizontal distances.

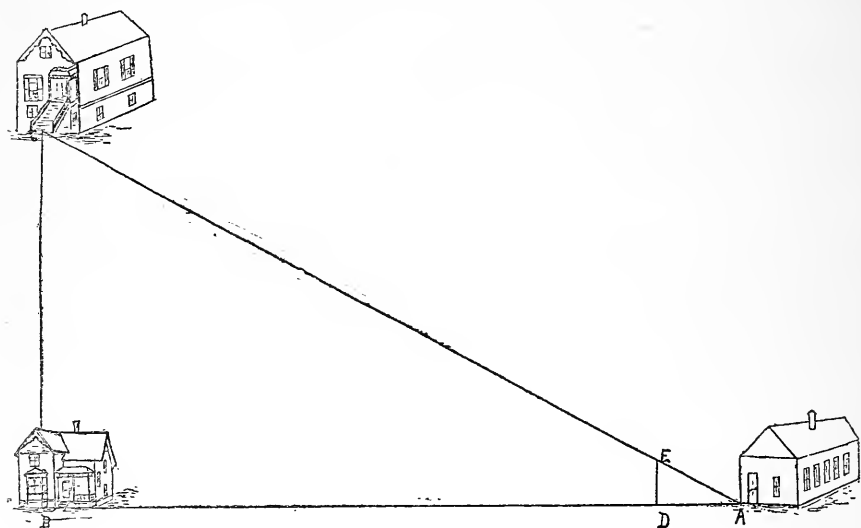


FIG. 2.

The schoolhouse is at A. John lives at B and Henry at C on another road. The relative position of the three houses is shown in Fig. 2. The distance from A to B is 200 rods. What is the distance from A to C? John starts from A toward B, and travels 16 rods to D; he then runs a line DE, making it perpendicular to AB, and meeting AC at E. AE is found by measurement to be 24 rods in length. Now the distances are proportional, and $AD : AB :: AE : AC$. Let x equal AC, and we have the proportion —

$$\begin{aligned}
 &AD : AB :: AE : x, \text{ or} \\
 &16 : 200 :: 24 : x, \text{ and the equation} \\
 &16x = 4800 \quad x = 300, \text{ hence } AC = 300 \text{ rods.}
 \end{aligned}$$

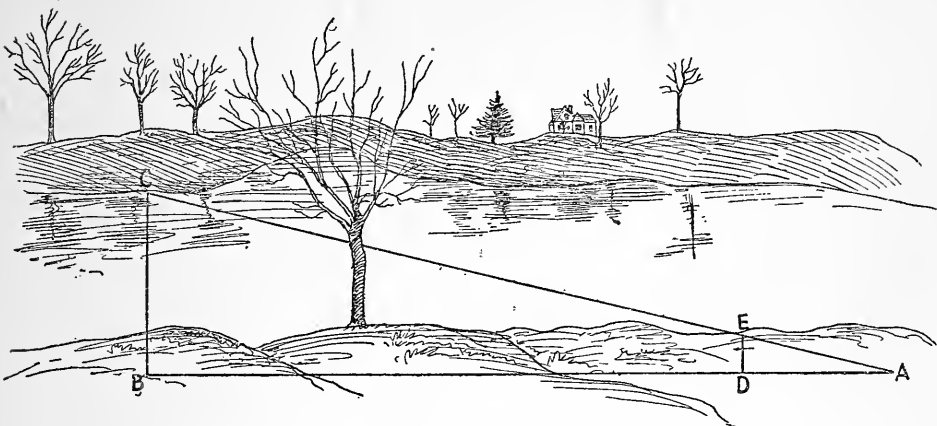


FIG. 3.

This method is very convenient in finding the distance between inaccessible points, as the banks of a stream. (Fig. 3.) Mark some point of the opposite bank, as C. Construct the line AB, say 200 yards long, and 10 yards from the bank of the stream, making BC perpendicular to AB. From A sight a line to C, making AC. From the point where AC cuts the bank construct DE perpendicular to AB. Measure the distance from A to D. Suppose it to be 30 yards. The distances AD, AB, DE, and BC are proportional, and we have the proportion —

$$AD : AB :: DE : BC$$

$$AD : AB :: DE : x$$

$$30 : 200 :: 10 : x$$

$$30x = 2000$$

$$x = 66\frac{2}{3}, \text{ the number of yards from B to C.}$$

$$66\frac{2}{3} \text{ yd.} - 10 \text{ yd.} = 56\frac{2}{3} \text{ yd., width of the stream.}$$

Ingenious pupils will be able to construct many problems to which these methods of solution can be applied.

COOPER AND SCOTT.

(Read with fourth and fifth numbers of Literature.)



It is axiomatic to say that Cooper was a follower of Scott. The fame of our first American novelist rose as that of Scott culminated, and as they were thus great contemporary writers of historical romance, it was inevitable that they should be compared or contrasted. It was likewise inevitable that the younger man, belonging to the younger nation, should be given a title suggestive of the older.

Cooper was not among the countless imitators, although he acknowledged that he belonged to the school of Scott. His imagination was strongly stirred by reading Scott's novels; there are some echoes of Scott in *The Prairie*, and he was stimulated by Scott's inadequacy as a nautical painter, as well as by the charm of *The Pirate*, to write *The Pilot*, his greatest story of the sea and one of the greatest sea stories in all literature. The work of the two, however, while presenting many resemblances, varies widely in most essentials.

Cooper's countrymen, in their pride, were glad to associate his name with that of the most famous writer of the time, and certain people in England thought Cooper equal to the great master of historical romance. Scott himself was much struck with the scenes and personages in Cooper's work, and predicted success. The great French contemporary, Balzac, said of *The Pathfinder*: "It is beautiful, it is grand, its interest is tremendous. . . . I know no one in the world

save Walter Scott, who has risen to that grandeur and serenity of colors." The continental fame of Cooper rivaled that of Scott, his work was translated into many languages; both men were equally lionized when they happened to be in Paris at the same time.

There was a wide difference between the men as to personal character, and in the preparation of each for writing; to these two things are due the fundamental differences in their work, but the exterior points of resemblances are many. Both were great creators, supreme and most fertile storytellers, and brilliantly successful as such. Cooper was best fitted to tell the broad story of adventure, and Walter Scott, in the height of his popularity, when Cooper's first great novel was written, had made this kind of story supremely fashionable. Their themes, though removed in space, were similar in character, both had the same sort of magical authority over the spirit of romance.

Scott was as greatly beloved as a man as he was admired as an author, while Cooper possessed in large measure "the gentle art of making enemies;"—he got into innumerable controversies, twenty lawsuits at one time,—because he lacked tact and the broad sympathy which was so characteristic of Scott. To those who knew Cooper intimately he had an especial charm of "spirit." The charm of Scott's personality was irresistible; it imposed itself even upon animals,—his life was divided into different periods by the reign of his different dogs and horses. Both had great natural strength of mind and will, but Scott had more of self-command. Both were great lovers of physical nature and a life of action. Cooper had a sound and vigorous constitution, so that his work was almost a natural overflow of an abounding energy; Scott was sickly from childhood, he often

wrote when tortured by physical pain, and in later years when afflicted both in body and mind.

Cooper was deeply religious, while with Scott religion was more or less a convention. The heroes of both are invariably moral, although Scott said he had "an unfortunate propensity for dubious characters and all others of a Robin Hood description," so that he could not paint a hero. But the one man was as great a lover of goodness and right-doing as the other. Scott's last words to his son-in-law and biographer, Lockhart, were: "Be a good man,—be virtuous,—be religious,—be a good man."

The merest accident led Cooper into a career of authorship. He achieved success independent of scholarship or training. Up to thirty he had written nothing, nor made any conscious preparation for his work. In his first novel he used none of his own rich stores of experiences of wood and water, the domain he was later to make so powerfully his own. Scott was a story teller from childhood; he had a "gigantic memory," and his mind was a vast storehouse of border legends and stories of chivalry. He displayed the same prodigious perseverance as a writer that he did in gathering these stories in which he so delighted, united with the most methodical habits of work. His motto was: "Never be doing nothing."

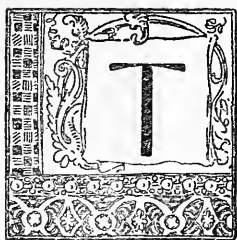
The chief faults or artistic blemishes in the work of these writers result, in Scott's case, from "a hurried frankness in composition," and in Cooper's, from hasty writing and a carelessness as regards details. Both wrote with astonishing rapidity and ease and spent little or no time in pruning. Such writers are rarely analytical or great character painters. Neither could paint highly interesting women, although Scott did succeed once or twice in doing so, and, in general they

did not draw character with any fineness of distinction. Forest, ocean, and stream were the things for which Cooper cared, and in general, men were a secondary matter; his scenery is highly picturesque and full of striking characteristics of wild American landscape, but there is no attempt in his pictures at that literary finish which gives grace and elegance to the descriptive passages scattered through Scott. There are no great irregularities in the work of Scott, while Cooper is most irregular,—there are glaring inconsistencies in his work. The proof of his greatness is that he triumphed in spite of his defects.

Scott's range was much wider than Cooper's. Once outside of his particular narrow vein, Cooper's work was most sterile of interest. Although Cooper did not have the skill to draw such varied figures as Scott, yet there is nothing in all Scott's work so characteristic as *Leatherstocking*. Scott brought back the old pageants and the long-dead feudal world; Cooper seized and embodied a simple, less gorgeous type of life that was rapidly passing away; he preserved the spirit of those isolated communities planted on the borders of the American wilderness,—he is the characteristic storyteller of American woods and waters. He wrote elaborately, courageously, on American subjects in an American spirit.

Both men were intensely national. With Scott this characteristic was perhaps more of a sentiment, with Cooper it was a passion. Scott made the mountains and lakes of Scotland famous throughout the world,—someone has spoken rather slightly of these regions as owing a little to nature and a great deal to Sir Walter. Cooper was the creator of American romance; he has rendered our native soil classic ground and given to our early history the enchantment of fiction.

GENERAL HISTORY NOTES.



THE capture of Constantinople by the Turks and the flight of its Greek scholars to the shores of Italy, opened anew the science and literature of the older world at the very hour when the intellectual energy of the Middle Ages had sunk into exhaustion.

The exiled Greek scholars were welcomed in Italy, and Florence, so long the home of freedom and of art, became the home of an intellectual rival. The galleys of her merchants brought back manuscripts from the East as the most precious portion of their freight. The poetry of Homer, the drama of Sophocles, the philosophy of Socrates and of Plato woke again to life. . . . From the first it was manifest that the revival of letters would take a tone in England . . . less literary . . . but more moral, more religious, more practical in its bearings both upon society and politics."

— Green's *Short History of the English People*.

"Italy was the main center and source of the Revival of Learning. . . . There was a thirst for a wider range of study and of culture than the predominantly theological writings and training of the Middle Ages afforded. The minds of men turned for stimulus and nutriment to the ancient classical authors. *Petrarch*, the Italian poet (1304-1374), did much to foster this spirit. . . . The Italian princes vied with one another in their zeal for collecting the precious literary treasures of antiquity. . . . The most eminent of the patrons of learning were the *Medici* of Florence. . . . The writings of Plato, . . . dictionaries and grammars, . . . the ancient poets,

philosophers, and orators . . . were diffused . . . by means of the new art of printing. . . . This period was . . . the brilliant dawn of a new era in art. Sculpture and painting broke loose from their subordination to church architecture."

— Fisher's *Outlines of Universal History*.

Some poems, dramas, and works of fiction relating to the period of the Renaissance and that of Spiritual Revival:

FICTION.

Bulwer's *The Last of the Barons* (Time of Richard III).

Reade's *The Cloister and the Hearth* (Erasmus).

George Eliot's *Romola* (Lorenzo de Medici).

Scott's *The Monastery, The Abbott, Kenilworth*.

Kingsley's *Westward Ho!*

DRAMAS AND POEMS.

Shakespeare's *Henry VIII*.

Scott's *Marmion, Lady of the Lake, Lay of the Last Minstrel*.

Schiller's *Maria Stuart* (Drama).

"For nearly twenty years Henry VIII lived happily with his wife, *Catharine of Aragon*, widow of his elder brother, and aunt of Charles V of Germany. But of their children, Mary, a sickly girl, alone survived. Should Henry leave no son, the royal succession would be imperiled, as no woman had as yet occupied the throne. . . . Henry professed to fear that the death of his children was a judgment upon him for having married his brother's widow. His scruples were quickened, perhaps even suggested, by the charms of *Anne Boleyn*, a beautiful maid of honor. Henry accordingly applied to Pope Clement VII for a divorce, alleging the stings of his

conscience as a reason therefor. The Pope hesitated, and the affair dragged on for years. At last Henry privately married Anne. Thomas Cranmer, who had been appointed Archbishop of Canterbury on account of his zeal in the king's cause, then pronounced Catharine's marriage illegal (1533). The forsaken wife died three years later. . . . Henry had no sympathy with the Reformation. Indeed, he had written a book against Luther's doctrines for which he had received, as a reward from the Pope, the title of the Defender of the Faith. . . . Link by link the chain that had so long bound England to Rome was broken. Parliament declared Anne's marriage legal, forbade appeals or payments to the Pope, and acknowledged the King as supreme head of the English church. . . . The monasteries were suppressed, and their vast estates confiscated. A part of their revenues was spent in founding schools, but the larger share was lavished upon the King's favorites."

— Barnes's *General History*.

"In 1685 the tolerant *Edict of Nantes*, promulgated by Henry IV of France in 1598, was revoked by Louis XIV, and all the privileges granted to the Huguenots were swept away. Their churches were pulled down, their worship was suppressed, their ministers were banished, and their laity were forbidden to leave the country under severe penalties. . . . The Huguenots sought safety and freedom of conscience abroad, and in a short time France was permanently the poorer by the loss of . . . half a million Protestant refugees, including many thousands of industrious and skillful artisans, who had fled to England, Holland, Switzerland, and the Protestant parts of Germany. The growth of the silk manufacture in England and elsewhere, and of many other profitable occupations, dates from the exile of the Huguenots."

— Sanderson's *Epitome of the World's History*.

TEACHING WRITTEN LANGUAGE.

(Read in connection with fifth and sixth numbers of
Theory and Art of Teaching.)



WHATEVER foreign languages a young man meddles with (and the more he knows the better), that which he should critically study and labor to get a facility, clearness, and elegance to express himself in should be his own, and to this purpose he should be daily exercised in it."

The above quotation from John Locke shows the value placed upon training in language by one who was a leader in educational thought, when the American colonies were in their formative stage. Now that means of communication have removed the barriers of time and distance between all nations, his conviction has a redoubled force. Our mother tongue is the most important scholastic subject which pupils study during their entire school life. Nevertheless, most of them leave school more deficient in this branch than in any other. This is due to various causes; undue emphasis given other subjects; bad habits of speech acquired at an early age; constant hearing of impure English; and wrong methods of teaching, being some of the most important. The teacher should always bear in mind the practical importance of this subject, and learn and use the best methods of teaching it. Whatever plan of presentation the teacher adopts, the method should include the following steps treated in the order given.

I. Getting and expressing thought. We can not pump water from an empty cistern; no more can one secure ex-

pression from an empty mind. Language training should begin the day pupils enter school, and continue as long as they remain.

In primary grades pupils become talkative as soon as they feel at home with their surroundings. The teacher should use the knowledge which the pupils already have, and material of the schoolroom as a basis for language work. Correct expression and right forms should be insisted upon from the beginning. But great care must be used in securing the desired result, or the pupils will become diffident, and then the teacher's opportunity for gaining full and free expression is lost. Corrections should be made by having the pupil repeat the correct language given him by the teacher, and not by calling attention to his error. By constant practice, the new forms of expression will gradually become habitual and take the place of the old and incorrect ones. The language lessons in this grade should have a definite purpose; the work of one day should lay the foundation for that of the next. The wise teacher takes a long look ahead in planning language work for the primary grades.

Thought-getting and thought-giving are reactionary and supplemental, each aids and strengthens the other, consequently the pupils should be led to express their ideas in more than one way.

II. Overcoming the mechanical difficulties of writing. Many boys and girls who can talk fluently upon subjects with which they are familiar, make utter failure when they try to express themselves in writing. There is a psychological reason for this failure, and the reason becomes very evident to any teacher on introspection of an attempt to perform an entirely new act. The new movements require a good deal

of attention, and the execution, instead of the result, is uppermost in mind. It is only when our movements have become habitual to the extent that they are automatic that we can give undivided attention to the result. Divided attention in anything always produces inferior results; and this is emphatically true in written language. Here the mind is not only divided between the execution and the result, but the state of mind which is brought to bear upon the execution is entirely different from that which should be brought to bear on the result. In the first state one is self-conscious, often to a degree which is painful; in the second, one needs to entirely lose himself in his subject.

That this facility in writing may be attained pupils should begin to write early, and should write a good deal. The correct use of capitals, punctuation, spelling, and the formation of sentences should be taught incidentally as the writing proceeds. Aim at one thing at a time; when a fair degree of facility is reached in that, begin on something else and continue the two together. By the simple addition of principles, the pupils are led to acquire the habit of expressing their thoughts in written form with ease and accuracy.

III. Securing style. Another reason for poor results in written language is that many pupils are led to think that they must use a different vocabulary in writing from what they do in speaking. A careful study of the works of great authors and orators shows that they use simple words and short sentences. If pupils are trained from the beginning to use pure English in both oral and written exercises, this difficulty will be overcome. Some teachers have a sort of schoolmaster vocabulary, never heard outside of the school, except by pupils who have not been in real life long enough

to get rid of it. Some homes have a false notion that the use of pure English is not indicative of refinement. Such ideas are false, and entertaining them often leads to false views of life. People who *retire*, but never go to bed; who *arise*, but never get up; who *fracture* their limbs, but never break a leg; who bid you *adieu*, but never say good-bye, are seldom in a state of mind which enables them to lose themselves in their subject, or to give full and fluent expression to their thought. Lead pupils to be free, happy, natural, and above all, original in their school work, and these qualities will appear in their written composition.

IV. Sticking to the text. The school period is the formative period of life, and the pupils' minds are prone to wander. Their replies are often anything but the answer to the teacher's question. Unless this tendency is checked it becomes a habit; the pupil fails to analyze his thought, and is as liable to give an answer that does not pertain to the question as one that does. Pupils should be held strictly to the question before them, and required to answer it, and no other. This practice will prevent much wandering in their written exercises.

V. Selecting material. The ordinary work of the school furnishes abundant material for written exercises, and should be used. Care should be taken to require written exercises upon such subjects only as the pupils have thoroughly discussed and understand. The relation between the oral and written recitation should be close and continuous. As the pupils advance in the grades, the subjects should become more comprehensive. Reading, nature study, geography, biography, and history furnish abundant material that is admirably suited to this work. Occasionally it is well to let pupils attempt an original sketch. Most of them enjoy such exercises, and they bring out the individuality of the pupils.

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The Home Student's Aid



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SIXTH
NUMBER



HOME STUDENT'S AID.

W. F. ROCHELEAU, EDITOR.

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HOME STUDENT'S AID



SUPPLEMENTING THE OUTLINE TEXT OF THE INTERSTATE SCHOOL OF CORRESPONDENCE



QUESTIONS AND ANSWERS.

One of the greatest values our students obtain from their course of study is that derived from faithfully answering the test questions. If all fully realized this, some would take more pains in the preparation of their answer papers. Let us look briefly at the purpose of these questions.

The test questions have a twofold purpose: first, to enable the school to get an idea of the student's knowledge of the subject; second, to aid the student in acquiring an understanding of the subject. The question is the teacher's instrument of analysis, and with his class before him, he can use questions for provoking thought and assisting his pupils to discover relations. Many of the test questions sent our students are for a similar purpose, while others call simply for a knowledge of certain facts which must be known before the subject can be mastered. Each class of questions is valuable and necessary and should receive careful attention. Let us see what answering them involves.

The question which calls simply for the statement of a fact draws upon the memory, and unless the knowledge has been retained in the student's mind, can not be honestly answered. Answers to this class of questions not only show

the instructors what knowledge the student has of the facts, but also strengthen the student's grasp on this knowledge. One of the principles of memory is that the more times a thing is repeated, the more firmly it is fixed in the mind. These questions also serve the purpose of assisting the student to single out the important facts and principles upon which special emphasis should be placed.

The second class of questions, however, predominates and is of greater importance; for while the memory must be ready with its facts and principles, the use of the memory alone does not lead to a working knowledge of the subject; clear thinking is necessary to its mastery, and here the question which calls for analysis, or the combination of elements into a classification, is often of great assistance. It is from answering this class of questions that the student derives great strength.

The correspondence student often has the advantage over his competitor in school. The temptation to hasten causes many a teacher to talk too much, and in this way prevent his pupils from doing their own thinking. Rather than wait for them to think out the answers to his questions, he answers them himself, and the real benefit which the pupils should receive from the recitation is lost. The home student must do his own thinking; whatever conclusions he reaches are his own,—he has reached them after a careful analysis of the subject, and in consequence holds them so clearly in mind that they give him a working knowledge of what he has studied. Reaching these conclusions requires effort, and often a more comprehensive knowledge of facts and principles than one possesses. The tendency on the part of some students is to consider the effort too great in proportion to the benefit derived, and to let the question go unanswered. This is a serious mistake. It not only lowers the grade of the

paper, but what is of much greater consequence, produces a decidedly bad effect upon the student. Habits are formed by doing things. Every time a student makes the effort necessary to answering a question of this sort, he gains power for greater achievements; and every time he neglects giving the answer, he takes a step toward becoming indolent. Every question answered makes it easier to answer the next, likewise every question omitted makes it easier to omit another. Students should put their best effort into answering *all* the test questions.

There is also much valuable discipline in the answers themselves. A clear, finished statement comes from clear, finished thinking. "No act of thinking is complete until its products have been set forth in words." The student's answers reveal his understanding or lack of understanding of the subject, and should be prepared with care.

Some have a tendency to make their answers so brief that more than one interpretation may be given them, and sometimes the answers fail to contain finished statements. The only guide which the school has is the answers themselves, and if they are defective, we can draw no other conclusion than that the pupil's knowledge of the subject is incomplete.

Some students, on the other hand, seem to have the idea that the merit of an answer consists in its length, and write voluminously. A careful study of this class of answers shows that the writers seldom do any clear thinking. The person who said, "Do not leave the place where we now stand until yon setting sun has passed below the horizon," meant simply, "Stay here till sunset." The latter expression is much the more effective, for it contains just what is necessary, and no more.

Like the illustration given, the answers should contain

just what is essential and no more. In order to accomplish this, it may be necessary to write some of them several times before the best form is secured. But this rewriting gives some of the most valuable drill that it is possible for a person to obtain. It is time well spent. You should think your answer through before beginning to write it. When it is written, scan it carefully to see that the statement is clear and complete, one that can not be reasonably interpreted otherwise than in the way you intend it should be. Scan it a second time for faulty language. Have you in all cases used the right articles and connectives? Do your subjects and predicates agree in person and number? Have you used any pronouns whose antecedents are obscure? Can you improve your expression of thought by changing the wording? These and other questions will arise in the mind of every thoughtful student when preparing his answers.

Answers to mathematical problems should always contain the solution; answers in language, science, etc., should, if possible, contain one or more original illustrations of the principles involved; answers to questions in history and geography should be complete, and set forth the leading facts clearly, omitting minute details unless they are specially called for; whenever drawings or diagrams will assist in making the answer clearer, they should be included.

As the finest watch is evidence of the most perfect mechanism and skilled workmanship, so a faultless answer paper is evidence of ripe scholarship and a cultured mind. Such papers more than doubly repay the time and effort required to produce them, and we are pleased to note that we receive many every week. Our aim is to lead each one of our students to reach the highest possible degree of excellence.

THE ART OF BOOK TASTING.



T was not far from three hundred years ago that Lord Bacon wrote:—

“Some books are to be tasted, others to be swallowed, and a few to be chewed and digested; that is, some books are to be read only in parts; others to be read, but not curiously; and some few to be read wholly, and with diligence and attention.”

The years have not changed the truth of that saying though they have materially intensified the force of part of it. The books that are to be tasted, that are to be read in parts only, have increased to such an extent it is not often in these days that one finds a new book worthy to be read throughout with diligence and attention. It still is essential for us to chew and digest some books and parts of many books, but the reader of to-day finds it absolutely essential to cultivate the art of tasting if he would keep pace with literary achievement.

The readers and other school text-books that are presented to the pupils are supposed to be books that should be read diligently, and yet no text-book was ever prepared that was all good for everyone who was compelled to use it. Nor was there ever a pupil to whom every one of his text-books was perfectly adapted. It is a fact, however, that every pupil may with advantage omit some portions of every text he handles. It is not often that his own judgment is the best, and yet his power of discriminating is increased only by use. He would naturally omit the parts that are not suited to his taste, but he is not often able to determine

what those parts are till he has read the matter through. In their reading, boys usually solve the difficulty more readily than girls. The former seem to understand by a sort of instinct that a long, closely printed paragraph is apt to lie heavy on the stomach, while a more broken page where there seems to be plenty of conversation will be palatable and nutritious. They have a keen eye for dry details, for long descriptions, for tedious moralizing, that saves them from many an attack of dyspepsia. But such tasting as this is unreasoning, and deprives boys of much pleasure they might derive from a closer reading; it brings about the habit of reading loosely, which we have been condemning in our previous talks.

We were the untrained boys and girls and have grown into teachers who read with a reckless disregard of good principles, skipping when we grow weary, merely because we are weary, or plodding along word for word where the reading is heavy, till we are exhausted and have no appreciation for the finer things when we reach them. We see in a magazine or a daily paper an essay whose title attracts us, but we are crowded for time and are not sure that it is worth a careful reading. What shall we do?

In the first place, we can assume that there is something in the nature of an introduction to the article, that there is a body or argument and some sort of a conclusion. The article is divided into paragraphs. These we know are made up of related units. These units are the sentences and they are composed of subjects and predicates with various modifiers. Here are the means by which we analyze the essay and determine whether it is worthy a careful reading. Our eyes are trained to move rapidly and intelligently. We grasp whole sentences at a glance. We do not try to see and recognize every word, but we see subjects and predicates, get the

skeletons of ideas clothed now and then with a phrase that forces its way into our mind. In this way we seize the introduction, we gain a general idea of the purport of the essay.

Now follows the body. A sentence or two now and then gives us the trend of thought. We see a line at a time, not separate words. Practice has given us a wider field of vision than we thought possible and we find we can see nearly all we need by allowing the eye to travel vertically down the middle of the page. When we have caught the drift of the argument we turn to the end of the essay and read a little more particularly the conclusions. These sum up the argument, and show us that we have lost much and should read the article again with great care, or that we have no further use for it.

Most of us have access to large or small libraries, and it is of great value to us to know the books therein. We can not know all intimately but we can have a bowing acquaintance with every one. For a long time the writer was near a large library and made it a practice to introduce himself to a new book every day during a brief rest period between classes. It was a delightful fifteen minutes and resulted in a knowledge that has proved very valuable since. It taught him where things are to be found if nothing else. Here is an outline of the steps by which you can learn to know what a book contains:—

Take the book in your hand, noting its size and weight. Scrutinize the cover, its title and any decorative designs. You are missing much in these days if you do not attentively notice the new and beautiful cover designs.

Open the book and run the leaves under your thumb, to get a general idea of paper, print, divisions, and illustrations.

Read the title page carefully, noting the name of the author and the information concerning him. See who are

the publishers. The names of certain firms are guarantees of the general excellence of the book.

Read the preface, hastily at least, with care if found worthy. The preface tells you something you ought to know before reading the book.

Turn to the table of contents. Here things are arranged in the order in which they appear in the book. You will learn the general plan of the work, the main ideas considered.

Look at the list of illustrations, refer then to a number of the pictures and examine them closely.

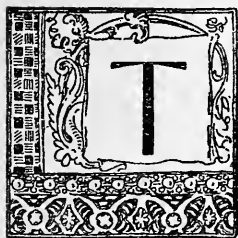
Turn to the end of the book and see if there is an index. If there is, run your eye down the column, pick out a few attractive subjects, look them up and read what is said. If there is no index find in the table of contents an attractive title and turn to that, skipping through the article after the manner described a few paragraphs back. By this time you will have found something that will hold you closely as long as you can remain with the book, or you can lay it down satisfied it has no message for you.

Such tasting as is described above is a fine art and there is good reason for its continued practice by every teacher. Those who have never trained themselves to read in this way have no conception of the rapidity with which general ideas can be gained nor of the surprising accuracy of the estimates that can be formed.

To distribute books or papers to a class, give them these general directions, and then, after a limited time, to call for reports from different members of the class, is a most valuable exercise, and teachers will be surprised to see how the power to read rapidly and estimate fairly grows with use. This makes a very profitable exercise for even young children.

AMERICAN POLITICAL PARTIES.

(Study in connection with sixth number of History of the U. S.)



THE early history of the colonies does not reveal any political parties of national import. The nearest approach to a national sentiment on a political question developed in the Albany Convention, when an attempt was made to form a union. (See Hist. U. S., Outline Text No. 2, note 5.)

Soon after the French and Indian war the affairs of the colonies began to assume national importance. The controversy with England caused political lines to be sharply drawn, and two parties arose; the Whigs favoring the colonies, and the Tories favoring the crown. (See Hist. U. S., Outline Text No. 3, note 2.) The Tories were decidedly in the minority, and included those who held office under royal appointment and their immediate followers. When the war broke out most of them returned to England, leaving the Whigs the sole party in the country during the struggle and the years immediately following.

Two opposing factions soon developed in the convention which framed the Constitution; one was in favor of a strong central government, the other of strong state governments with a weaker national government. Those in favor of the first idea prevailed, and the Constitution was placed before the states for adoption. The party in favor of its adoption took the name of Federalists, throwing upon the opposing party the name of Anti-Federalists. The Federalists were successful, and both parties united in the election of Washington, who

placed the leading men of each party in his cabinet. The Anti-Federalists strongly opposed the establishment of a United States Bank, and a protective tariff. During Washington's first term they changed their name to Republicans, but showed no strength at his second election. When, however, Washington refused to serve a third term, they made an ineffectual struggle to gain the presidency.

The Federalists and Anti-Federalists represent through their respective founders, Hamilton and Jefferson, the two great schools of thought in American politics. The one was based upon the idea of a strong national government with large latitude in interpreting the meaning of the Constitution when the interests of the country demanded a liberal construction; the other believed that the government should rest with the people, that the states should be largely independent, and that the Constitution should be strictly construed. History, however, shows that the views respecting the interpretation of the Constitution have changed with the parties. The party in power is always for liberal construction, and the party out of power for strict construction.

The difficulties with France and England led President Adams to secure the passage of the Alien and Sedition laws. These were met with general opposition, and weakened the Federalists. The legislatures of Kentucky and Virginia passed resolutions favoring nullifying an act of congress when it exceeded the authority granted by the Constitution. These measures were known as the Kentucky and Virginia Resolutions.

With the election of Jefferson, the Republicans came into power, and the Federalists soon lost all influence in national affairs. During Jefferson's administration the Republicans divided into two wings; the Federal-Republican, opposing the administration, and the Democratic-Republican, support-

ing it. The Federal wing showed its greatest strength in the New England states. During Madison's administration there was little opposition to the Democratic-Republicans, except in New England, where the Federalists still showed some strength. This they lost through the influence of the Hartford convention.

At Monroe's election the Democratic-Republican, usually known as Republican, was the only party in the field. But during his term of office the party again divided into two wings; the National-Republicans and the Democratic-Republicans. This division was made on the issues of the tariff and slavery. The National-Republicans favored a protective tariff and opposed the extension of slavery. The adherents to this wing of the party were the most numerous in the North. The Democratic wing opposed the tariff and favored the extension of slavery. They were most numerous in the South.

In 1828 the Democratic-Republicans dropped the name Republican, and on the election of Jackson came into power under the name of Democrats. With two exceptions, they held control of the government until 1860, and were responsible for all the effective legislation for nearly 40 years.

During Jackson's administration a growing opposition to the slave power was started. This resulted in the organization of the American Anti-Slavery Society, in 1833. Previous to this there had been no organized attempt to check the increasing influence of the slave-holding states, though the Missouri Compromise was a close approach to such an attempt. A party opposed to the influence of secret societies in national elections, and known as the Anti-Masonic, originated during Jackson's time, and obtained some strength in New York and a few New England states. It did not, however, gain any influence in national affairs.

Jackson's radical measures alienated many of his own party. These, with the National-Republicans, united and formed the Whig party, which numbered Clay and Webster among its leaders. The financial distress following Jackson's administration led to large accessions to the Whigs, who in 1840 elected William Henry Harrison. The death of President Harrison, and the failure of President Tyler to act in harmony with the party, caused the Whigs to lose strength, and the Democrats were again successful, electing Polk in 1844.

During Van Buren's administration the anti-slavery sentiment crystallized in the organization of the Liberty party, which in Harrison's administration became known as the Abolition party, and from this time on was a growing menace to the slave-holding power. During Polk's term this party became known as the Free-Soil party, and advocated "Free soil, free speech, and free men." Slavery began also during this administration to work a division in each of the old parties. Those at the North opposed its extension, and some strenuously contended for its abolition; those at the South either advocated the extension of slave territory, or gave passive consent to it.

In 1848 the Whigs again succeeded in carrying the presidential election, and placed President Taylor in the chair. Slavery was the great issue during this administration. The Omnibus Bill of 1850, Fugitive Slave law, and abolition of the slave trade in the District of Columbia, were some of the important measures passed by congress.

In the election in 1852 the Democrats were again successful and elected Franklin Pierce. His administration is marked by the attempt to open the Territory of Nebraska to slavery by what was known as the Kansas-Nebraska Bill. This bill was based upon the idea of squatter sovereignty, as

advocated by Stephen A. Douglas, of Illinois. This measure tended to unite all parties opposed to the administration. The American party was organized in 1852. It took its name from its hostility to the influence of foreign born citizens in elections; its followers received the nickname of Know-Nothings.

Near the close of this administration the Free Soil party, American party, and those Whigs and Democrats who were opposed to the extension of slavery, joined the Anti-Nebraska men and formed the Republican party. This party secured 114 of the 296 electoral votes in 1856, and elected Lincoln in 1860. With two exceptions (1884 and 1892), it has carried every presidential election to the present time.

The election of 1860 was the crisis of American politics. There were four parties in the field.

The Northern Democrats, with Douglas for their leader, believed in letting the inhabitants of each new state determine whether or not it should be slave territory. The Southern Democrats, with Breckenridge for their leader, believed in unlimited extension of slave territory. The Constitutional Unionists, with John Bell for their leader, had an indefinite platform, in which they affirmed support to the Constitution. The Republicans, with Lincoln for their leader, believed in restricting slave territory to the slave-holding states. The Republicans were successful, and the slave-holding states immediately seceded. All parties in the North united in support of the administration during the war.

The assassination of Lincoln, and differences between President Johnson and congress, led to a division in the Republican party during that administration, but the party united in 1868 on the election of Grant, who had been a life-long Democrat.

Since the civil war, parties have divided largely on the

financial and industrial policies of the government. The Republicans have favored a high protective tariff, and national banks. The Democrats have favored a low tariff, and a change in our national banking system. Hostility to some of Grant's measures led to a division in the Republican party during his first term, and the Liberal-Republicans, joined by many Democrats, nominated Horace Greeley for president in 1872. Grant was re-elected by a large majority; the great editor went down in defeat, and soon after died, as a result of the labors and disappointment of the campaign.

The election in 1876 was closely contested, and was finally settled by a special commission which seated Rutherford B. Hayes, the Republican candidate. His administration was marked by the resumption of specie payments in 1879. The assassination of President Garfield, and the events following, so hopelessly divided the Republicans that the Democrats were successful in 1884 and placed Grover Cleveland in charge of affairs. The Republicans returned to power in 1888, with Benjamin Harrison for a leader, and again in 1892 yielded to the Democrats, who re-elected Cleveland.

The currency question became a dominant issue in 1896. The western states whose leading production was silver, became interested in giving that metal a wider circulation as money than was provided for by law. The Republicans from these states united with many Democrats and Populists from the great agricultural states and secured control of the Democratic National Convention in 1896. They made the free coinage of silver on the basis of value to gold of 16 to 1 the issue of the campaign, with William Jennings Bryan for their candidate. The Republicans, with William McKinley for their candidate, met the issue with a campaign for a currency based upon a gold standard. The Democrats who were opposed to the free-silver policy of their party

organized as the Gold-Democrats, and assisted in the campaign for the gold standard. McKinley was elected by a large majority.

The conditions of the country resulting from the Spanish-American war were joined with the free-silver issue of 1896 in the campaign of 1900, with the same candidates in the field. McKinley was again victorious, receiving a larger vote than at his first election.

A few minor parties demand passing attention.

The Greenback party was organized in 1874, and opposed the measures for resumption of specie payments. The Greenback-Labor party was an outgrowth of this movement, and advocated practically the same measures. From this party originated the Labor party. This, after existing under various names and divisions, was merged into the People's party in 1891. This party's candidate, James B. Weaver, received 23 electoral votes in 1892. The merging of the People's party, known as Populists, with the Silver-Republicans and Democrats helped to make the silver question more prominent in the campaign of 1896.

The Prohibition party was first organized in 1869, and held their first nominating convention in 1872. The Prohibitionists differ from the other parties principally in making the prohibition of the liquor traffic the main issue in the campaign; they also advocate woman suffrage. They have never secured an electoral vote.

PRESIDENTS AND PARTIES.

PRESIDENT	STATE	TERM	PARTY IN POWER	OPPOSING PARTY
George Washington.....	Virginia	1789-1797	Federalist	Anti-Federalist
John Adams.....	Massachusetts	1797-1801	Federalist	Republican
Thomas Jefferson.....	Virginia	1801-09	Republican	Federalist
James Madison.....	Virginia	1809-17	Republican	Federalist
James Monroe.....	Virginia	1817-25	Republican	Democrat
John Quincy Adams.....	Massachusetts	1825-29	{ National Re- publican	{ Republican
Andrew Jackson.....	Tennessee	1829-37	Democrat	{ National-Republican
Martin Van Buren.....	New York	1837-41	Democrat	{ Anti-Masonic
{ William Henry Harrison.....	Ohio	1841-45	Whig	{ Whig
{ John Tyler.....	Virginia			{ Democrat
James K. Polk.....	Tennessee	1845-49	Democrat	{ Liberty
{ Zachary Taylor.....	Louisiana			{ Democrat
{ Millard Fillmore.....	New York	1849-53	Whig	{ Free Soil
Franklin Pierce.....	New Hampshire	1853-57	Democrat	{ Whig
James Buchanan.....	Pennsylvania	1857-61	Democrat	{ Free Soil
{ Abraham Lincoln.....	Illinois	1861-69	Republican	{ Republican
{ Andrew Johnson.....	Tennessee			{ American
Ulysses S. Grant.....	Illinois	1869-77	Republican	{ Democrat
Rutherford B. Hayes.....	Ohio	1877-81	Republican	{ Greenback
{ James A. Garfield.....	Ohio	1881-85	Republican	{ Democrat
{ Chester A. Arthur.....	New York	1885-89	Democrat	{ Labor
Grover Cleveland.....	New York	1889-93	Republican	{ Democrat
Benjamin Harrison.....	Indiana	1893-97	Democrat	{ Labor
Grover Cleveland.....	New York	1897-	Republican	{ Republican
William Mc Kinley.....	Ohio		Republican	{ People's
			Democrat	{ Republican
			Republican	{ Populist

BUDDING AND GRAFTING.

(To be studied in connection with the sixth number of Botany.)



THE corresponding number on Botany in the Outline Text treats of the various methods by which plants are naturally propagated. Budding and grafting are two artificial methods in general use by horticulturists for propagating fruits and garden shrubs.

With these our students should be acquainted.

Budding is the method quite generally employed by nurserymen in propagating trees and shrubs. It is well known that seeds of cultivated fruits seldom reproduce plants bearing the same variety of fruit, and budding and grafting are means of overcoming this difficulty. The bud bears all the characteristics of the tree, and is capable of almost unlimited development. When carefully set in the stock of another kindred species, or variety, it will reproduce a tree similar to that from which it was taken.

Next to the wood is a soft bark, the cambium layer; it is from this that the annual growth of wood is formed. When the bud and the cambium layer on the stock are so joined as to permit the sap to flow from the stock to the bud, the latter is nourished, and forms a perfect union with the new plant. By some mysterious power the cells of the bud so change the sap which comes from the stock as to cause it to produce a plant like that from which the bud is taken. Budding and grafting depend upon the same principle. In the former, the bud only is used, while in grafting, a small section of a branch is inserted.

The stem in which the bud is set is called the stock. Two slits are made in the bark of the stock forming a T-shaped cut, and the bark is slightly raised. This completes the preparation of the stock. The bud is cut from the tree so as to have a portion of the bark and usually a little of the wood retained. The portion cut off is shield-shaped. (*a*, Fig. 1.)

The buds used are those formed in the axil of the leaf. The leaf is cut off, leaving a portion of the foot-stalk which is used for a handle. The bud is now inserted under the bark so that the shield is covered, leaving only the vital point of the bud exposed; the stock is then wound with some material that will give slightly when the bud swells, and the process is completed. (*b*, Fig. 1.)

The buds should be taken from shoots of the present year's growth, and only strong, healthy buds should be selected. The sooner the buds are inserted in the stock after cutting, the better. In case they can not be inserted immediately they must be kept moist.

Choice varieties of trees can be propagated rapidly by this method, one bud being sufficient for a tree when inserted in a young stock near the root. Large trees can also be rehabilitated by this process by inserting numerous buds in their branches. Late summer or early autumn is the best season for budding.

Grafting, as already stated, is the process of inserting a section of a branch, called a cion (sometimes spelled scion) in the stock. The cion from which the terminal bud is cut



FIG. 1.

off must contain one or more healthy axillary buds. Cions are usually cut in the fall and stored in damp sand or sawdust during the winter, for grafting must be done in the spring unless the plants are grown in hothouses.

There are several methods of grafting, known as cleft grafting, crown grafting, whip grafting, and inarching. In cleft grafting the branch is sawed off horizontally, then split through the middle. The cion is whittled wedge-shaped and inserted so that a perfect joint is formed between the cambium layers. If the branch is large, two cions are usually inserted. The end of the branch is then covered with wax to keep out the air and water. (Fig. 2.)

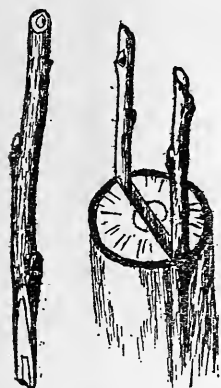


FIG. 2.

In crown grafting the branch is sawed off as before, but instead of splitting it open the bark is loosened, and the cions are inserted between the bark and wood. (Fig. 3.) Whip grafting can be employed only with small stocks, and when stock and cions are of the same size. Each is cut at an acute angle and then a tongue is formed on each side so that the joints fit perfectly. After the cion is placed in position, the joint is wound tightly with a waxed cord. (Fig. 4.)

Whip grafting is resorted to for the purpose of grafting choice varieties onto hardy stocks, and the joint is usually made near the root, so that both trunk and branches come from the cion.

Inarching is used with cions which

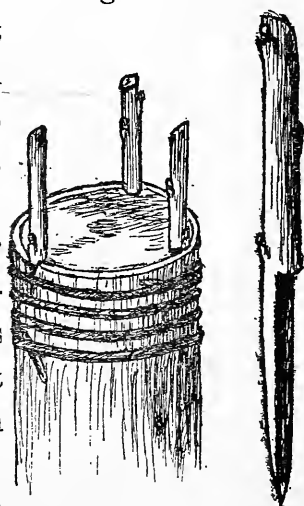


FIG. 3.

are difficult to graft. The cion and stock are brought near each other, the cambium layers exposed, and the two stems are tightly bound together at the point of exposure. The cion remains joined to the parent plant, which is usually in a pot of earth until the union with the stock is formed. This method can be successfully used sometimes by simply keeping the cion in a jar of water until the union is formed.

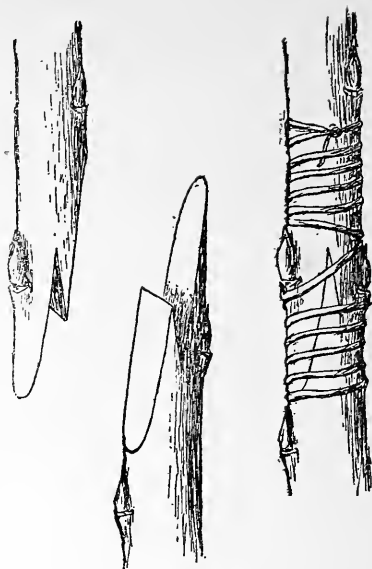


FIG. 4.

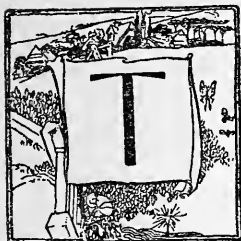
A good quality of grafting wax can be made as follows:—

Melt together resin, 4 parts by weight; beeswax, 2 parts; tallow, 1 part. When melted, pour the mixture into cold water and work with the hand until the wax becomes flexible. Cold wax should be applied with the fingers, and melted wax with a brush. It can also be applied on soft muslin or calico, by winding the branch with the waxed cloth.

Budding and grafting require sharp tools and a fair degree of skill, but anyone interested can easily learn the processes and successfully apply them. A little attention to these methods of propagation will enable almost any farmer to raise an abundant supply of choice fruit.

HAWTHORNE AND DICKENS

(Read in connection with the sixth number of Literature.)



To compare the two great masters of fiction, Hawthorne and Dickens, in respect to their genius and the general character of their style and subject-matter, would be quite futile, since no common ground of tendency and expression is to be found; each had his own peculiar province which he treated in a manner entirely original and individual. Yet, both men were kind, gentle, sensitive spirits, animated by a commanding sympathy which expressed itself unobtrusively in the case of the American, vigorously and vividly in the writings of the Englishman. The life-purpose which developed from this sympathy with human-kind, especially with all who suffer whether from sin or oppression, constitutes the bond of likeness between the two authors; the form and method in which this deep motive accomplished itself has produced the interesting difference in the impressions left by Hawthorne and Dickens on their respective ages, and in their value to succeeding generations.

The influence of Charles Dickens's work upon his own period was in part due to the worn-out state of the immediately preceding style of fiction, which too often dealt with a flimsy sentiment and foppery existing in the upper classes of English society. The new writer, coming from the middle rank and having no connection with, or interest in, the aristocracy, devoted all the strength and freshness of his genius to the portrayal of life in the class from which he had sprung and in those below it. Giving himself up so completely to

his task that his own personality was lost in his writings, and that no limitations of his own individuality were allowed to mar the faithfulness and vividness of his presentation, he became the potent champion of this almost unrecognized part of English society. In the words of E. P. Whipple, "He introduced the people of England to its aristocracy." The woes and the vices and the appealing opportunities for reform in the lower social orders, put in a peculiar realistic style, stirred the interest even of the nobility wearied with accounts of its own monotonous doings, and aided to a degree which can never be estimated, in unifying English society.

To this field of activity Dickens always confined himself, and within this limited scope he attempted the working out of his great purpose which, according to his own avowal, was "to show that all men may be saved." With his simple, sincere nature, this object meant no ostentatious display of principles and veiled attempts at preaching; never is his purpose unpleasantly apparent in his novels. Not only was he too truly an artist to make his novels consciously didactic, but he felt that life itself when honestly presented offers its own best interpretation and highest hope.

It is very often charged against Dickens, however, that he does not always give us life; that often his characters are rather caricatures. There is undoubtedly a certain degree of exaggeration, but it seems due to the force of his writing, and adds merely a grotesque vividness to the essential elements of character which are never absent. His humor, too, is said to go beyond life at times, but here it would seem that his extreme sensibility has expressed itself in a more highly colored form than is our common experience. Another evidence of this unusual sensibility is his wonderful power of pathos, which consisted in being able to see the moral beauty

of the humble, often sordid and miserably narrow life with which he dealt.

Notwithstanding this possible exaggeration which is Dickens's peculiar creative touch and by which, according to some critics, he departs from truth, he has made himself a powerful factor in brightening the world and thus making it purer. The means by which he has made himself thus felt is rather universal sympathy than comprehensive intellect. Large souled and warm hearted, his power lies in his feeling of kinship with humanity and in his appeal to the emotional side of human nature. A wide range in character building he did not possess; he was incapable of abstracting qualities from various characters and uniting them again in new and generalized forms; his characters are always specific — just as he found them. But if they thus sometimes fail to afford intellectual interest, they more than compensate for this lack by their appeal to the heart. If the reader of Dickens looks merely for intellectual enjoyment, he may fail to be satisfied; if he can enter into the author's realm of active sympathy and imagination, he will laugh *with* the actors, not *at* them, will share their sorrow and the meaning of their lives. Dickens's spirit of geniality, his ever-present sympathy, his sincere belief in the more or less hidden good of every human character, have made him not only the practical reformer to whom was due the abolishing of imprisonment for debt and the reform of the school system in England, but a power of world-wide influence.

Oliver Wendell Holmes said of Nathaniel Hawthorne: "The Yankee mind has, for the most part, budded and flowered in pots of English earth, but you have fairly raised yours as a seedling in the natural soil." This statement of the thorough Americanism of our greatest novelist is beyond

dispute. He made New England history with its flavor of gloomy superstition, the setting of his works, and formed his characters out of the modified Puritanism of his time. Although the scenery in one or two memorable instances shifted to foreign lands, never did the essential type of character vary. The daily lives of the people from whom he was descended and with whom he lived, or rather the inner lives — the consciences — of these people, became the study of Hawthorne's penetrating genius.

His brooding disposition gave itself up to the intricacies of moral problems; his deep sympathy, not always recognized, concerned itself with the origin of sin in the human heart, from which comes all human suffering. So completely was he absorbed in this chosen field of study and literary effort, so deeply was he impressed with the inevitableness of human sorrow while sin exists, that he has been called a fatalist, and his influence with certain classes of minds has been cut off. Notwithstanding the appearance of doubt in his writings, he had a strong, abiding faith and a geniality which, because of his very sensitive and retiring spirit, and the nature of his theme, have not made themselves readily and forcefully felt. Moreover, his somewhat limited field of contemplation tended to produce a sympathy rather intense than universal.

No more than Dickens did Hawthorne become a didactic writer; too truly was he an artist and a poet to allow his interest in his observations as a novelist to betray him into sacrificing the beauty of his work. Indeed, Hawthorne had no philosophy of life to teach; the problems he presents were not of his own making, but are those of life itself naturally embodied in the substance of his writings. It is true that they are never set forth in realistic manner, but in a style which seems a natural outgrowth from their essence.

and which is stamped with an entirely peculiar element of the supernatural and of half mysterious coincidence.

Hawthorne's force as a writer comes from a far different source than that of most authors. With him, the inner life with its unrecorded struggles and development, takes the place of action in most novels. But in depicting this inner life there is often a greater force than in motion. The grandeur and importance of the theme possess a silent power and dignity all the more effective because not always suspected.

Hawthorne's writings like his personality thus make their influence felt by their repose. Their effect on private character is of almost unrealized importance; their far-reaching effect on modern thought has been exceedingly great. Of the many imitators of Hawthorne, none have approached him; some writers have been so stimulated by him that they have made much more worthy development in their own original lines. He owes the matchlessness of his power to a rare combination of the qualities of a poet and of a moralist. His instinct and belief turned toward the beautiful, and this he found only in moral truth. The very purity and loftiness of his aspirations and feeling perhaps precluded a far-reaching geniality; his spiritual inspiration and the stern atmosphere in which he has placed much that he has written, deprived him of the enthusiastic reception and immediate popularity accorded Dickens, but Hawthorne's writings have, nevertheless, produced a quietly powerful revolution, and must ever remain a soothing inspiration.

GENERAL HISTORY NOTES.



THE aim and scope of that civilizing process which all hopeful thinkers recognize in history is the attainment of *Rational Freedom*. But the very term Freedom supposes a previous bondage; and the question naturally arises: 'Bondage to what?' " A superficial inquirer might answer that people have been and are in bondage to kings, aristocracies, hierarchies, and other ruling bodies, but "it seems demonstrable that it is in some sense to its *own* belief, its *own* Reason or essential being, that imperfect humanity is in bondage. . . . In less cultivated nations, political and moral restrictions are looked upon as imposed by some power outside of ourselves; the constitution of society, like the world of natural objects, is regarded as something into which a man is inevitably born; and the individual feels himself bound to comply with requirements of whose justice or propriety he is not allowed to judge, though they often severely test his endurance, and even demand the sacrifice of his life. In a state of high civilization, on the contrary, though an equal self-sacrifice be called for, it is in the support of laws and institutions which the individual has had a part in forming, and which he feels to be just and desirable." — Hegel's *Philosophy of History*.

"*Henry IV* of France died by the dagger of Ravallac in 1610. His son, *Louis XIII*, being then but nine, his mother, *Mary de Medici*, ruled as regent. Louis was a feeble character. A man now came to the front who was to be the real King of France, and to mark an epoch in the history of

Europe. This man was a quiet-looking ecclesiastic named *Armand Duplessis de Richelieu*, who had been appointed Bishop of Lucon, and had afterward become spiritual adviser to Mary de Medici. She succeeded in getting for him a cardinal's hat from the Pope and in having Louis XIII admit him to the cabinet. No sooner had he taken his seat at the council-board than it was evident that the true man was found. For twenty years (1622-1642), he exercised an entire control over the king, making him, as was said, 'the first man in Europe, but the second in his own kingdom.' Richelieu was, like Wolsey of England, a prelate, a minister of state, a consummate politician, and a master of the arts of intrigue. He added to his other dignities the emoluments and honors of a soldier, assumed the title and dress of generalissimo of the French army, and wore alternately the helmet of the warrior and the scarlet hat of the cardinal. The chief domestic object of Richelieu was the crushing of the Huguenots. Alienated by persecution, they attempted to establish an independent state with Rochelle as the capital. Richelieu laid siege to this city, which, after a year's siege, during which 15,000 persons perished, was forced to surrender (1628). By this event the Protestant power in France was finally crushed. The principal aim of Richelieu's foreign policy was the humiliation of Austria. This he accomplished by giving his aid to Gustavus Adolphus in the Thirty Years' War."

— Swinton's *Outlines of the World's History*.¹

"By the *Edict of Nantes*, signed and published at Paris in 1598, Henry IV added a great deal to the rights of the Protestants and to the duties of the state toward them. Their worship was authorized in the castles of all lords. The

¹ A spirited pen picture of Richelieu and the siege of Rochelle may be found in Dumas's *The Three Guardsmen*.

state was charged with the duty of providing for the salaries of the Protestant ministers and rectors in colleges and schools. A special '*edict-chamber*' was instituted for the trial of all causes in which Protestants were interested. Catholic judges could not sit in this chamber without consent of the Protestants. In several cases the edict-chamber had two presidents, one Catholic and one Protestant, and twelve councilors, six of each religion. The Edict secured to the Protestants about two hundred towns which had fallen into their hands by war or treaty."

— Guizot's *History of France*.

"The '*edict-chambers*' instituted by Henry IV in 1598 were suppressed by Louis XIV, his grandson, in 1669, and the Protestants found themselves delivered over to intolerance and religious prejudice. The doors of all employments were closed against Huguenots; they were deprived of the right to sit in the courts or Parliaments, or to become medical practitioners, barristers, or notaries; children seven years of age were empowered to become Catholics against their parents' will. Protestant pastors were forbidden to enter the houses of their flocks, save to perform some act of their ministry; every Protestant chapel into which a new convert had been admitted was to be pulled down, and the pastor was to be banished."

— Guizot's *History of France*.

CONSTRUCTION AND USE OF OUTLINES.



ALL true teaching has for its purpose the development and application of general, or class notions. These notions are formed from individual ideas in the mind, by grouping together the qualities of those ideas having a number of common characteristics. The teacher who stops with the individual notion, falls far short of the goal which she should reach. Knowledge must be classified in order to be valuable and classification can come only through the general notion.

Much of the most valuable results to be derived from the pursuit of such subjects as geography and history is lost because pupils are left with a mass of disconnected facts in mind which have no significance to them and which can be recalled only with difficulty, if at all, when wanted. This is true to some extent in arithmetic and other branches. How many pupils look upon decimals and percentage as entirely new subjects when approached for the first time, never thinking that they simply apply, in a different form, the principles already learned.

Among the devices which teachers can properly use to assist pupils in relating the facts of any subject, the outline deserves a prominent place. The danger arising from the use of any device is that too great emphasis will be placed upon it, and this is particularly true of the outline. It occupies a conspicuous place on the page of the text-book, or is placed upon the board where it can be read. Instructions are given to the class to copy and learn it. The pupils follow

directions to the letter, and in too many instances memorize what is given in the belief that thereby they learn the subject. A proper use of outlines will not, however, lead to such practice.

Outlines should be constructed as the subject progresses, as a result of the pupil's study, not for the purpose of directing him in that study. This is readily illustrated from the study of a continent. The class begins with North America. The first question naturally is, "Where is it?" The answer leads to determining the latitude and longitude. This gives rise to the question of size, including length, breadth, and area. The next question is that of form, and this leads to the study of the coast line, including projections and coast waters. The interior of the continent then demands attention, and we study its surface. This includes mountains, valleys, plains, and plateaus. Drainage follows surface, and climate comes in as a result of all the conditions studied up to this time. Productions are closely related to climate, and so on until the subject is completed, each lesson being hinged upon what has preceded it. By having the class begin the construction of an outline at the start, and by seeing that it is carried along with each day's lesson, a complete scheme for study is secured by the time they are ready to pass to the next continent.

Pupils follow outlines most readily when braces are used. Adopting this plan, the outline for the study of North America may take the form shown on the following page.

NORTH AMERICA.

- | | | |
|-----------------------|---|--|
| 1. Position | { | Latitude.....
Longitude..... |
| 2. Extent | { | Length.....
Breadth.....
Area..... |
| 3. Coast line | { | Projections {
.....
.....
Coast waters {
.....
..... |
| 4. Surface | { | Mountains {
.....
.....
Valleys {
.....
.....
Plains {
.....
.....
Plateaus {
.....
..... |
| 5. Drainage | { | Watersheds {
.....
.....
Rivers {
.....
.....
Lakes {
.....
..... |
| 6. Climate | | |
| 7. Products, etc..... | | |

The pupils should fill in the details from day to day as the study proceeds. Provided the *pupils* construct this outline they at once see how its main divisions apply to the study of all continents, and thus discover their general similarity in structure.

History, physiology, and kindred subjects can be treated in the same way to good advantage. In all cases *have the pupils construct the outlines*.

This class of outlines serves several valuable purposes:—

1. They afford one means for language training, and teach pupils to arrange subjects in good form.
2. They are excellent in directing the study of reviews.
3. They give the pupil opportunity to view the divisions of a subject in perspective as it were, and in this way enable him to see relations more clearly. This is the particular province of the diagram in grammatical analysis. All of these points are of special value to the correspondence student.

Another class of outlines should occasionally be constructed for the purpose of giving information in condensed form. These should be used more as tables of reference than as guides to study. The subject-matter of such tables seldom needs to be memorized, but does need to be readily accessible. Pupils usually take great interest and pride in the construction of such tables. A good illustration of this sort of work is the table accompanying the article *Recent Territorial Acquisitions* in the fifth number of the Aid, and that of the *Presidents and Political Parties* in this number.

The outlines following *How to Know the Conebearers* in the third number and *Reading for Information* and *How We Elect a President* in the fifth number, illustrate plans for successful use in connection with reading and literature.

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SEVENTH
NUMBER



HOME STUDENT'S AID.

W. F. ROCHELEAU, EDITOR.

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HOME STUDENT'S AID



SUPPLEMENTING THE
OUTLINE TEXT OF THE
INTERSTATE SCHOOL
OF CORRESPONDENCE



A STUDY OF THE PRINCESS.



SINCE it is a masterpiece which contains not only some of the most striking examples of Tennyson's art, but also a problem of vital interest, solved in a way which has been widely accepted, *The Princess* as a study will interest us. Moreover we can easily obtain it, as it is found in every complete edition of the poet's works, and is published separately besides. We will therefore use it as a means of applying the information and suggestions we have received from the articles on reading in the preceding numbers of the Aid.

Although we know that the poem is a most celebrated piece of literature, we wish to find whether or not it has any especial value and attraction for us, and to discover this we first use the method of "tasting" discussed in the sixth number. We turn to the prologue and learn that *Lilia*, who is protesting against the position of woman, is to become the heroine of a story to which each of seven young men present is to contribute. Passing to the body of the poem we notice at once a complete change in the atmosphere. By skimming

through the seven cantos, catching at subjects and predicates, and the first and last lines of the stanzas we get the drift of an interesting story in which are mingled mediæval romance and latter-day philosophy.

At the beginning of each part and sometimes in the body of the canto occur beautiful little lyrics which we glance through, and try to connect in their significance with the rest of the story. As we proceed we can not afford to pass by any notes without ascertaining whether they are really helpful in character or not. Finally turning to the end of the seventh canto we look over the lines with more care, since here if anywhere the poem should show its strength; and we are not disappointed. We find an opinion of woman's position in life, given in a compact form and beautiful setting, which at once convinces us that it is worthy of deep study. Passing to the conclusion we find from the effect on the poet's audience that the problem of the poem must have been developed in an interesting and telling manner. This, together with the beautiful bits of expression which have fastened themselves upon us in passing, quite justify a wish for a closer reading and study.

Before we begin reading the poem, however, we may recall that a great epic like *The Princess* appeals to us under three different aspects: to the active part of our natures, as a story; to our intellects, because of the thought; and to our emotions, or more definitely, to our love of beauty, for the poetry. As the story naturally interests us first, we will give our attention to it, in the manner indicated in *The Reading of a Story* in the third number of the Aid. We find the prologue, laid in a modern English scene, suggestive of the chief elements of the body of the poem which has for its setting the age of chivalry; for its hero a blue-eyed, golden-

haired prince, possessed of poetic sensibility and dreamy thoughtfulness; for its heroine a noble-minded princess in the growth of whose character we are chiefly interested. Side by side with the plot, the character of the princess develops from the stage of intolerance of all which does not contribute to the improvement of woman's intellect, through anger and sorrow caused by the failure of a purpose inherently weak and especially unsuited to the age, to that adjustment of heart and intellect which is the poet's conception of woman's highest nature. And this growth is accomplished by the influence of a little child which is felt in the crucial points of the poem. The actors in the story are thus very real, but in combination with an impossible plot, produce a medley quite unattractive to some readers. Though this may be our feeling, we nevertheless recognize the sublimity of the poet's philosophy and of the spirit with which he champions woman, revealed especially in passages of the last canto.

Since we can not here consider the thought of the whole poem we will select one of these passages for study:—

“‘Alone,’ I said, ‘from earlier than I know
Immersed in rich foreshadowings of the world,
I loved the woman:

.
Yet was there one thro’ whom I loved her, one
Not learned, save in gracious household ways,
Not perfect, nay, but full of tender wants,
No angel, but a dearer being, all dipt
In angel instincts, breathing Paradise,
Interpreter between the Gods and men,
Who look’d all native to her place, and yet
On tiptoe seem’d to touch upon a sphere

Too gross to tread, and all male minds perforce
Sway'd to her from their orbits as they moved,
And girdled her with music. Happy he
With such a mother! faith in womankind
Beats with his blood, and trust in all things high
Comes easy to him, and tho' he trip and fall
He shall not blind his soul with clay.' ”

After we have read the lines through carefully for a general impression, we go over them again to assure ourselves that we understand all of the words as used in the selection. Probably we recognize in them all old acquaintances though “rich foreshadowings” may sound an unfamiliar note. The idea may be clearer by substituting “intimations” for “foreshadowings,” and accepting “rich” in the sense of “valuable for undeveloped possibilities.” Feeling now fairly certain of the words, we look for peculiar phrases, and perhaps find nothing more than a striking brevity in the use of “earlier” in the first line where “an earlier time” or something similar seems understood. As for allusions, we note one, contained in the figure of minds swaying from their orbits and giving out music as they move. Evidently the beautiful ancient belief in the music of the spheres is here referred to. When we come to the consideration of figures of speech, we find abundant material. Especially fine is the central figure, which is really the poet’s description of the purity and grace of his mother, a being almost angelic yet bound to earth by ties of human love. The suggestiveness of “all dipped in angel instincts,” “breathing Paradise,” and “girdled with music,” can scarcely be described. And again, could a more fit expression of the vital force of “faith in womankind” be found than “beats with his blood”?

But we might fill pages in trying to exhaust the figures of this one passage. If we now turn to the sentence structure, we find nothing obscure, merely an unusual compactness.

Before the attempt to get the thought of the whole, we pause in difficulty, realizing that the rich suggestiveness of the imagery would make any very satisfactory expression impossible. But for our purpose may we say: "Faith in the sweet purity of a woman such as the poet describes his mother, inspires men to nobler living"? And then, when we outline the thought of the selection may we not divide it into —

The poet's statement of his faith in woman.

The description of his ideal

who is remarkable rather for qualities of heart than
for intellectual attainments;

who partakes of the divine, while imperfect and en-
deared to the human.

His valuation of his ideal

she inspires to a higher life.

Finally we shall give back to the poet what we have been able to read out of his lines, and let him put his full thought before us as we read the selection once more for the complete impression.

We may now be enough interested in the poet's mother to search for a beautiful figure in the fifth canto, in which he has described her nature as —

"Pure as lines of green that streak the white
Of the first snowdrop's inner leaves."

How peculiarly apt this figure is we can only feel, not tell in words. What a susceptibility to nature's beauty it reveals!

And shall we be contented after this evidence of Tennyson's power to find unsuspected charms of nature, to lay down his poem without further satisfying our love of beauty? The difficulty will be rather in rejecting than in selecting further illustrations in which we may use what we have learned in the article *On Reading Poetry*. In general we notice the slow, sweeping effect of the iambic pentameter from which the structure of the poem seldom departs except in the little lyrics scattered through it. There is however one notable exception to the prevailing effect, in the tense, rapid movement of the tournament scene at the end of the fifth canto, which reaches its culmination in the lines: —

“ But that large-moulded man,
His visage all agrin as at a wake,
Made at me through the press, and, staggering back
With stroke on stroke the horse and horseman, came
As comes a pillar of electric cloud,
Flaying the roofs and sucking up the drains,
And shadowing down the champaign till it strikes
On a wood, and takes, and breaks, and cracks, and splits,
And twists the grain with such a roar that Earth
Reels, and the herdsmen cry.”

In contrast how calm is the solemn, simple little lyric which follows, *Home they brought her warrior dead!* As another example of Tennyson's wonderful music and of the unusual fitness of the sound of his words to the actual natural phenomena, we may turn to the lyric which is considered by some critics to be the finest since Shakespeare: *The splendor falls on castle walls*. Here there is a vibrating quality of sound which gives place to softer, gentler forms as the blare of

the trumpet passes away in ever fainter echoes, and the thought moves from matter to spirit. Again in the lines:—

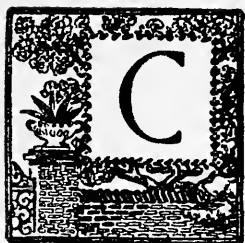
“ As in a poplar grove when a light wind wakes
A lisping of the innumerable leaf and dies,
Each hissing in his neighbor's ear; ”

we can trace the vividness of effect in part to sounds of words which are closely like those of nature, as in the frequent recurrence of s's; and in part to the word structure, as in the suggestion of infinite number contained in the long-drawn-out pronunciation of “innumerable,” and in the harsh rapidity of “hissing.” For sweet, gentle music let us read the lullaby preceding the third canto.

Have we not now discovered the essential charm of *The Princess*—something which offers more than compensation for any lack of interest we may have felt in the story or the thought? For poetry, though it may not concern itself with excellence of story structure, so necessary to the novelist's art, nor with the heavy literary form affected by the philosopher and the scientist, yet possesses a surpassing merit. This it derives from that intimate association with nature which gives the poet at once the naïve, beautiful interpretation of life possessed by primitive man, and the clear far-sightedness of the prophet. And if we have now some idea, perhaps only a vague realization, of these elements in Tennyson's art, we shall wish to go through the poem, re-reading those portions which we recall as most abundant in beautiful expression and giving ourselves up to the enjoyment which is the peculiar charm of this form of literature.

IMPORTANT CANALS.

(Read in connection with the review of Geography.)



CANALS have been in use for many centuries, and were constructed first for the purpose of irrigation, later for navigation.

The most important oceanic canals now in use are the Suez, the Kaiser Wilhelm, the Cronstadt, the Corinth, and the Manchester. (Look up the location of each of these on a commercial map.)

The Suez canal is the largest and most important. Sixty miles of its length are through shallow lakes. This canal was opened to traffic in November, 1869, and about 4,000 vessels pass through it yearly.

The Kaiser Wilhelm or North Sea canal, was constructed principally for naval purposes but is also an important commercial route. It saves the vessels entering or leaving the Baltic sea the tortuous and dangerous passage through the straits.

The Cronstadt canal has a depth which is sufficient for nearly all vessels navigating this arm of the ocean.

The Manchester ship canal is one of the greatest works of modern times, and its completion made a sea port of this great English manufacturing center, although it is situated 35 miles from the coast. The width is sufficient to allow steamers to pass at any point. Several of the locks are widened sufficiently to admit of the turning of large boats. On account of the wharves which line its banks this canal has been termed a continuous wharf. Its completion in 1894 marked a great event in the history of English commerce.

The Corinth canal cuts off the distance around the Grecian peninsula, and the Caledonian canal extends across Great Britain between England and Scotland, but is not navigable for large vessels.

Inland canals are in many instances of greater commercial importance than oceanic. Large countries possessing navigable rivers and lakes are greatly benefited by extending these water routes by the construction of canals. Russia leads all nations in the development of this system, having over 34,000 miles of navigable waterways. By means of these she can pass vessels from the Baltic to the Black sea, and far into the interior of Siberia and other Asiatic possessions. The government expends a large appropriation each year in keeping the canals in repair, and in constructing new ones.

The United States has 18,600 miles of canals and navigable rivers. While this system is not as extensive as that of Russia, commercially it is vastly greater in importance. The necessity of connecting our great system of inland waterways with the Atlantic early attracted the attention of colonial statesmen and financiers. Washington was the father of the canal system of the United States. In 1775 he began a preliminary survey for the purpose of locating a canal that should connect the Ohio and Potomac rivers. In 1792 he became president of a company which was organized to construct what is now the Erie canal. The first canal was constructed in this country in 1793. It extended around some rapids in the Connecticut river at South Hadley, Mass.

One great object in canal building has been to connect the Great Lakes with the Atlantic. The first important work was the completion of the Erie canal in 1825. This canal extends from Albany to Buffalo, and has in all 72 locks. As first constructed the Erie canal was 40 feet wide and 4 feet

deep, but it has since been much enlarged. A second enlargement is under way which when completed will give a depth of 9 feet. This is the longest inland canal in use at the present time. The canal was constructed by, and has always been under the control of, the state of New York.

A chain of ship canals now connects the lakes with the sea via the St. Lawrence river. These canals belong partly to the United States and partly to Canada. The system begins at Sault Ste. Marie, where the St. Mary's river falls 18 feet through the celebrated "Soo" rapids. There are three canals at this point, one on the Canadian and two on the American side. These canals are simply locks for the purpose of raising or lowering boats, and are less than a mile in length. The lock completed by the United States in 1897 is the largest structure of the kind in the world. This lock is a marvel of engineering skill. It is 800 feet long, 100 feet wide, 22 feet deep above the miter sill, and has a fall of 18 feet. The number of ships passing through this lock yearly is three times the number passing through the Suez canal. Only four per cent of the ships passing to and from Lake Superior use the Canadian lock.

The Welland canal forms the next link in the chain, and enables ships to overcome the change of level between lakes Erie and Ontario. Following this are the canals around the various rapids in the St. Lawrence. The total length of all these canals is 71.78 miles. They have 47 locks, and have been deepened so that now vessels drawing 14 feet of water can pass from the lakes to the sea.

The most important prospective waterway in the United States is the Chicago Drainage canal. This was constructed for the purpose of changing the course of the Chicago river, and turning the sewage of the city from Lake Michigan

into the Illinois river. It enters the Illinois river at Joliet, and has sufficient depth to float the largest ships. When the government has made the necessary improvements on the Illinois and Mississippi rivers, this canal will constitute part of a deep waterway from the lakes to the Gulf of Mexico.

The United States is also engaged in the construction of the Hennepin canal from Hennepin on Lake Michigan to Rock Island on the Mississippi. This is a boat canal.

The future waterway in which the world is most interested is the canal which will connect the Atlantic and Pacific oceans. Two routes are under consideration; one across the isthmus along the line of the Panama railway, and the other through Nicaragua. The canal along the Panama route has been partially constructed. Work was begun in 1881 under the direction of Count de Lesseps, who constructed the Suez canal. The enterprise was capitalized by the French. After spending a vast sum the project was abandoned as impracticable. The United States is now taking active measures which will lead to the construction of a canal along one of these routes in the near future.

The subjoined table gives the statistics of the canals most used for commercial purposes:—

CANALS.

NAME	CONNECTING	LENGTH	WIDTH	DEPTH	CLASS
Suez.....	Mediterranean and Red seas	100 mi.	420 ft.	31.2 ft.	Oceanic, Ship
Manchester.....	Manchester with sea.....	35.05 mi.	172 ft.	26 ft.	Oceanic, Ship
Kaiser Wilhelm.....	North and Baltic seas	61 mi.	258 ft.	29.5 ft.	Oceanic, Ship
Cronstadt.....	St. Petersburg and sea.....	16 mi.	350 ft.	20.5 ft.	Oceanic, Ship
Corinth.....	Bay of Corinth with Gulf of Athens....	4 mi.	79 ft.	26 ft.	Oceanic, Ship
Chicago Drainage...	Lake Michigan and Illinois River.....	28 mi.	160 ft.	33 ft.	In'nd and Drain. } Ship
Sault Ste. Marie.....	Lake Superior and St. Mary's River....	$\frac{2}{3}$ mi.	100 ft.	22 ft.	Inland, Ship
Welland.....	Lakes Erie and Ontario.....	26.75 mi.	160 ft.	15 ft.	Inland, Ship
St. Lawrence River..	Around rapids.....	Total, 44.	70 ft.	15 ft.	Inland, Ship
Erie.....	Lake Erie and Hudson River.....	363 mi.	70 ft.	7 ft.	Inland, Boat
Illinois & Michigan..	Lake Michigan and Illinois River.....	97.25 mi.	60 ft.	7 ft.	Inland, Boat

CARE OF THE EYE.

(Read in connection with the seventh number of Physiology and the eighth number of Physiology and Hygiene.)

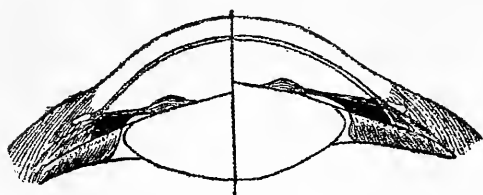


THE eye is at once the most delicate and the most useful of all the organs of sense. We receive more knowledge through the sense of sight than through any other sense. For this reason if for no other every teacher should understand what constitute the conditions most favorable for the use of the eye in the schoolroom, and every student should be equally familiar with these conditions as they apply to his own work.

The mechanism of the eye has been fully outlined in the numbers of the text referred to at the head of this article, and does not need to be repeated here. The eye closely resembles the photographer's camera. The rays of light passing through the camera and crystalline lens cross and are focused upon the retina, producing an inverted image resembling that on the screen of the camera. All optical instruments have an arrangement by which the distance between the lens and the plane in which the image is formed can be so adjusted as to produce a clear and distinct image. The point at which the image is formed is called the focus of the instrument. The adjustment of the focus in the camera is by moving the screen backward or forward as the circumstances require.

The eye has a focusing apparatus peculiar to itself. As it can not move the retina back and forth and change the distance between it and the lens, it adjusts itself to objects at different distances by changing the curvature of the lens.

The apparatus by which this is done consists of the minute ciliary muscles back of the iris, and the capsule in which the lens is suspended. This capsule is connected with the ciliary muscles by a circular ligament. If the eye is normal the lens should, when at rest, bring rays of light coming from an object distant twenty feet or more at focus upon the retina. When we wish to view an object near at hand, the ciliary muscles contract and cause the lens to become more convex on its front side. The lens retains this form as long as the muscles remain tense, but when they relax, immediately resumes its normal shape.



The rapidity with which the lens can adapt itself to objects at various distances is astonishing as can be readily

realized by noticing how completely one can take in the rapidly changing scenes when traveling on a railway train, or how quickly change the view from the printed page to a distant object. This change in form is illustrated in Fig. 1. The right half of the lens shows its form when adjusted to near objects.

If the form of the eye is defective, the image seldom falls in its proper place on the retina. There are three common defects in form: (1) The eye may have too sharp a curvature of the cornea or of the lens, so as to bring the focus in front of the retina, in which case the person is said to be near, or short, sighted. People so afflicted tend to remedy the defect by bringing the object near the eye. (2) The back of the eyeball may be flattened too much, causing the focus to fall back of the retina. In eyes of this form distant objects are seen more distinctly, and the book or paper is held at arm's

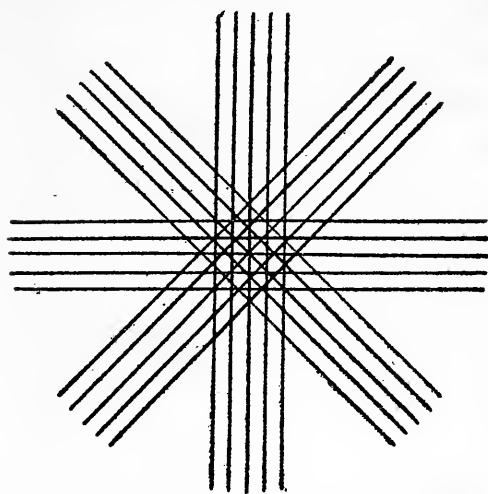
length for the convenience of the reader. This defect is known as far-sightedness, and is seen most frequently in people past middle life. (3) The curvature of the eye may be uneven, and in this way throw the image out of focus. This defect may exist in one or both eyes. It is known as astigmatism.

All parts of the retina are not equally sensitive to light. A small area called the yellow spot and directly in the line of vision, is the most sensitive area, and unless we direct the eyes towards an object so that the image can fall upon this part of the retina, we can not obtain a distinct view. The movements of the eye are controlled by a series of six muscles attached to the exterior of the eyeball for this purpose. Astigmatism usually throws the image to one side of the yellow spot, and this causes extraordinary effort upon certain muscles to turn the eye so as to bring the image in the right place. Long-continued strain paralyzes the muscle and the eye becomes fixed in that position or squints.

Near-sightedness, far-sightedness, and astigmatism are the most common causes of defective vision. When the eye is not normal, the undue strain to which the ciliary muscles are subjected produces partial or complete paralysis, and the lens assumes permanently the form into which it has thus been forced. Many children are short-sighted, and on account of this defect will go through at least a portion of their lives handicapped unless something is done to restore their vision to normal condition. Children with defective vision usually have difficulty in reading, seeing work upon the board, and in playing many of the games in which their comrades rejoice. Mistaken teachers and parents often subject such children to great torture by terming them stupid, and attributing their want of interest in study to a lack of desire to learn.

Such pupils may not know the cause of their trouble, or knowing it may be extremely reticent about it. Whenever a pupil's work and attitude in the schoolroom give ground for the least suspicion of defective vision, his eyes should be tested and his parents informed of the result.

These tests are very easily made. For testing for long or short sight, all the teacher needs is a plain white card and a page of good print. The proper reading distance for type such as is used on this page is about fourteen inches. Direct the child to look at the page at the proper distance with both eyes open while the card is held in front of one eye. If he brings the page nearer, it indicates near-sightedness; if he pushes it away it indicates far-sightedness. Note the distance at which the pupil can read the most easily. Change the card to the other eye and repeat the experiment. See whether or not the distance is the same for both eyes. To test for



astigmatism, take a piece of white cardboard six or eight inches square, and rule it as in Fig. 2, being careful to have the lines all the same size and the same distance apart. Hang this eight or ten feet from the pupil, hold the card in front of one eye as before and ascertain

whether or not some lines appear heavier than others. If some seem more distinct, learn in what direction they extend. Place the card before the other eye and repeat the experiment. If the lines appear uneven to either eye that eye is astigmatic.

When a child's eyes are found to be defective, an oculist should be consulted, and proper spectacles provided as soon as possible. The continual strain upon the eye caused by any deformity not only tends to increase the deformity, but also weakens the nervous system, and tends to impair the health.

There is, even among some enlightened people, an objection to the wearing of spectacles by children, that verges upon the superstitious. They seem to fear that if the child begins to wear spectacles he will have to wear them through life. One of the most eminent authorities upon this subject says, "To fight against the assistance which art may supply in this direction, is as absurd as to refuse to eat when hungry or to sit down when tired. Why should they (spectacles) not be worn through life if by their aid discomfort is removed and sight preserved . . . ? It would be just as sensible for a lame man to refuse the aid of crutches because he can never hope to walk again without them."

The light in the schoolroom should come from the left and back and from above the desk or table upon which work is placed. In no case should one reading or studying sit directly facing the light, or in case of artificial light, with the light between the eyes and the printed page. The amount of light should be ample. In schoolhouses the window space should be at least one-fifth the floor space, and in rooms on the north side of the house or near the ground in large buildings it should exceed this proportion. All windows should be supplied with shades.

The height of the desk or table bears an important relation to normal vision. If the desk is too high, the book is brought so close to the eye that the ciliary muscles are subjected to a constant strain, and in time this leads to changing the form of the lens so as to make the eye short-sighted. As the eye

becomes tired the tendency is to bring the book still nearer, and thus increase instead of diminish the danger.

The selection of spectacles when they are needed should be made with the greatest care. They should never be purchased of peddlers, or those who are not qualified by knowledge and experience to give a thorough examination. When one's vision is defective his eyes are seldom alike, and each needs a special lens. Unless spectacles are properly fitted they are liable to be injurious instead of beneficial.

Great care should be taken in removing any foreign substance when it gets under the eyelid. Unless the object is imbedded in the eyeball it can usually be washed out by winking the eye in a cup filled to the brim with warm water. Placing eyestones, flaxseed, etc., under the lid should be avoided.

Defective eyes often result from sickness or from reading during the period of recovery. One should not read when lying down, as in that position it is almost impossible to hold the page so it will be in the direct line of vision for any length of time, and the effort to read when the page is out of this position produces a severe strain on the eye.

Eyelashes should not be pulled out, for they are protecting organs, and keep foreign substances such as cinders, from entering the eye. They also shade it somewhat from too intense light.

GENERAL HISTORY NOTES.



SOME standard works of fiction are given below, which will be helpful in the study of the history of the seventeenth and eighteenth centuries.

Sir Walter Scott

- Fortunes of Nigel (Reign of James I of England)
- Legend of Montrose (Scotland under Charles I)
- Woodstock (Cromwell and Charles II)
- Peveril of the Peak (England under Charles II)
- Old Mortality (Scotland under the last Stuarts)
- Rob Roy (Reign of George I of England)
- Heart of Midlothian (England and Scotland, 18th cent.)
- Redgauntlet (Times of the Young Pretender)

W. M. Thackeray

- Henry Esmond (1691-1714)
- The Virginians (America in the 18th century)

Charles Dickens

- Barnaby Rudge (England under George III)
- Tale of Two Cities (French Revolution)

Victor Hugo

- Ninety-three (French Revolution)

R. D. Blackmore

- Lorna Doone (England under James II)

Erckmann-Chatrian

- The States General (France in 1789)
 The Country in Danger (France in 1792)
 Madame Therese (The Volunteers of 1792)
 Year One (French Revolution)
 Citizen Bonaparte.

George Macdonald

- St. George and St. Michael (Charles I and Parliament)

G. A. Henty

- Held Fast for England (Gibraltar, 1779-83)
 Jacobite Exile (Times of Charles XII of Sweden)
 Lion of the North (Wars of Gustavus Adolphus)
 With Frederick the Great
 With Wolfe in Canada.

Three conspicuous actors in the English Revolution of 1688 are sketched below.

Louis XIV, king of France (1643-1715), "bigoted, narrow-minded, commonplace as he was, without personal honor or personal courage, without gratitude and without pity, insane in his pride, insatiable in his vanity, brutal in his selfishness, had still many of the qualities of a great ruler: industry, patience, quickness of resolve, firmness of purpose, a capacity for discerning greatness and using it, an immense self-belief and self-confidence, and a temper utterly destitute indeed of real greatness, but with a dramatic turn for seeming great."

— Green's *Shorter History of England*.

"William, the Prince of Orange (afterward William III of England), became Stadtholder of the Dutch Republic in

1672. His wife was Mary, the elder daughter and heiress of James II of England. The wiser among English statesmen had fixed their hopes steadily on her succession to the throne of her father, whose tyranny had become unbearable. But her accession as queen involved the accession of the Dutch prince, her husband, as king of England. William's earlier life had schooled him in a wonderful self-control. He had been left fatherless and all but friendless in childhood. He grew up silent, wary, self-contained, grave in temper, cold in demeanor, blunt and even repulsive in address. He was weak and sickly from his cradle, and manhood brought with it an asthma and consumption which shook his frame with a constant cough. But beneath this cold and sickly presence lay a fiery and commanding temper, an immovable courage, and a political ability of the highest order. William was a born statesman." — Green's *Shorter History of England*.

James II of England (1685-88) was an arbitrary ruler. "James paid no heed to his promise to defend the Church of England. He turned out the judges who did not please him. He created a new *Ecclesiastical Commission*, for the coercion of the clergy, with the notorious *Jeffries* at its head. After having treated with great cruelty the Protestant dissenters, he unlawfully issued a *Declaration of Indulgence* (1687) in their favor, in order to get their support for his schemes in behalf of his own religion. He sent seven bishops to the tower in 1688, who had signed a petition against the order requiring a second Declaration of Indulgence to be read in the churches. Popular sympathy was strongly with the accused, and the news of their acquittal was received in the streets of London with shouts of joy."

— Fisher's *Outlines of Universal History*.

IDEAL SCHOOL CONDITIONS.



VERY one knows that environment and physical comfort contribute largely to success. Aside from their potent influence in molding character, agreeable opportunities for healthful activity make results vastly greater in amount and value. Many teachers and school officers are not as able and ready as they should be to give reasons for the faith that is in them and to explain why certain conditions are favorable to the well balanced growth and development of children. How few can tell briefly and intelligently why scholars should not face the light, why the window shades should be dark and the ceiling of the room light in color, why a blackboard of real slate should be preferred, why in cold weather fresh air should be admitted only after being warmed by the heater, and answer similar questions simple in character but vital in their importance as related to school management.

Our attention has often been attracted to the neat little brown schoolhouse in Unity district, four miles from our village. Last week the teacher invited us to visit her school, urging that the schoolhouse, its surroundings, and its furnishings, exhibited the best arrangement for successful school work to be seen in this portion of the state. Yesterday we made the visit, and in the belief that others may be interested in what we observed, we will attempt a brief description.

As we approached the schoolhouse we noticed that it was built upon a brick foundation and was fully two feet above the general level, the ground about the building having been raised by filling up to the sills of the house. The ground

gently sloped away to quite a distance, thus affording excellent drainage and insuring dry playgrounds in all weather. The surface was well sodded and the fine shade trees showed a thrifty growth.

Realizing that the outbuildings of the schoolhouse are likely to reflect with as much certainty as any other feature the actual moral status of a community, we were intensely gratified to find the necessary outhouses clean and neat, without and within. No doubt much credit is due the teacher in this case. Sometimes earnest, conscientious teachers will succeed in preserving a good, healthy condition of the outbuildings, without much active support from the school officers or the people of the community. Fortunate indeed is the teacher and district where the outbuildings remain clean and wholesome, and where the prevailing sentiment is always alive to the duty of preserving them in perfect condition.

We reached the schoolhouse door over a plank platform twenty feet wide extending along the entire front of the house. The vestibule or hall, well lighted by windows, brought us to large doors swinging outward through which we entered the schoolroom, and here we were welcomed by the teacher. Our wraps were hung in one of the two cloakrooms which open into the schoolroom but not into the hall. In this way outer clothing and overshoes are kept dry and warm. On a wide shelf in each cloakroom we noticed a row of dinner-pails. On the outside of one cloakroom was the door to the basement, and near this the place for the water pail and wash basins; on the opposite side of the house was the school library and a case for apparatus.

After being comfortably seated we looked about the room with much interest. The seats for the scholars were in rows facing the north end of the room, the larger desks in outside,

the smaller in inside rows. A slate blackboard extended across the north end of the room and around the corner to the window on each side. There was no teacher's rostrum in the way. The recitation seats facing the blackboard extended nearly across the room.

The light from every part of the room was very grateful to our eyes. A light-colored paper covered the walls and ceiling. The windows extended very high and the excess of their light was excluded by dark-colored shades of an opaque material.

The feature in which we were most interested was the quite perfect ventilation. It is a fact that teachers and school officers do not give this matter the attention its importance demands. Very many schoolrooms lack any effective provision for good ventilation. In this room the purity of the air was apparent to our own senses and the brightness and cheerfulness of the children at work were an unerring index to the truth.

The large heater was under the northwest portion of the house, with the fuel room on the east of the heater. The teacher stated to us that at first many did not favor placing the heater below the floor, but that the results had been entirely satisfactory. The well-warmed floor, the better distribution of warm air secured, the exclusion from the schoolroom of dust and litter, the lessened amount of fuel needed, and the floor space saved, all proved the wisdom of having the heater in the cellar.

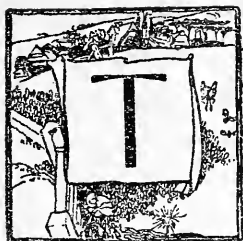
The removal of the vitiated air was easily accomplished here by an air shaft not connected with the smoke flue, but built against its inner side in order that the warmth of the chimney might help to accelerate the upward movement of the air in the airshaft. This shaft was two feet square and very

smooth on the inside. Two large registers opened from the schoolroom into it, one near the ceiling and another near the floor. Each of these might be closed, and as each of the large pipes admitting warm air from the heater into the room was provided with a damper, the rate of movement of the air in the schoolroom was under the control of the teacher.

Our attention was attracted to a large worktable upon which were a number of flowering plants in vigorous condition. There were also a few wide, shallow boxes of moist earth in which many kinds of young plants were starting. The teacher explained that the children were much interested the past few days in observing the germination of beans, corn, squash, apple, orange, and other seeds which they had planted. A few branches lying on the table showed also that instruction was being given in budding and grafting.

As the time shown by the clock neared twelve, one of the younger pupils stepped to the front with a fine flag and faced the school. All arose and as the flag was dipped they saluted it with earnestness in the words, *I give my head and my heart to my country. One country, one language, one flag.* Perhaps this was done for our benefit, but as an incident it was appreciated by us. Another pupil then rang the bell on the schoolhouse as the signal for noon, and our pleasant visit was over.

LOCAL GEOGRAPHY.



THE study of local geography furnishes the best means of preparing pupils for the study of general geography, since it makes the subject real and practical. It should therefore receive more attention than is ordinarily given to it. If the teacher would be successful she must be well versed in her subject, and the purpose of this article is to give some suggestions which will assist in acquiring the necessary knowledge.

Every teacher should become acquainted as early as possible with the locality immediately surrounding her school. If the school is in a country district, this knowledge should include the extent of the district, the location of any natural features of special interest, the location and direction of important streams, the general character of the soil and the important farm products, the location and extent of any special industries, and the location and direction of the principal roads and railways. If the school is located in a village or city, to the above items should be added a knowledge of the leading industries of the city, its important commercial relations, and the different classes of people which make up its population. This knowledge will form a basis for a much more thorough acquaintance with the locality and its people that will be gained as the weeks and months go by.

Acquaintance should be extended from the district to the town, the county, and the state. The summary given above furnishes a pretty fair guide to the knowledge that one should obtain of each of these divisions, though it needs to be somewhat extended for the county and state. While the child's

study needs to be confined to his neighborhood and town for some time, the teacher should make a systematic study of the state as the foundation of her knowledge of local geography. The subject can be pursued to advantage under the following heads:—

I. *Location.* An eminent educator has said that the answers to all questions in geography depend upon the answers to these two, “Where under the sun are we?” “Where in the world are we?” By this he meant that the geographical conditions of a place depend upon its latitude and longitude, and relative position on the earth. One should know the latitude and longitude of the state, in what part of the country it is located, the group of states to which it belongs, and the states touching its borders.

II. *Extent.* This should include the greatest length, greatest width and area. In some instances the average length and average width should also be learned. This will depend upon the shape of the state.

III. *Surface.* One should first get a general idea of the surface as a whole, noting the relative proportion of high and low land, and the general trend of any ranges of hills and mountains within the state. Following this a special study should be made of the surface in different parts of the state. Many of the large states have a great diversity of surface. All watersheds should be located and the direction of their slopes noted. Important mountain ranges and valleys should receive particular attention, and any points of special interest on account of their scenery can be studied at this time if one so desires. The character of the soil also should be included with the study of surface.

IV. *Drainage.* The study of this topic naturally follows that of surface. All river systems should be located, the

watersheds marking their boundaries noted, and the name, length, and course of the important streams learned. The largest streams in many states are of sufficient importance to demand special study. Such study should give one an idea of the river through its entire course, and also its value to the state as a source of water power, or, if navigable, as a commercial highway. Some rivers are valuable for each purpose in different parts of their course. The sources of many streams often merit attention, especially if they are large bodies of water, or important springs.

V. *Climate*. In the study of the climate of any locality the causes which determine it should be carefully noted. The local causes of particular importance will be altitude, direction of slope, prevailing winds, and location in reference to large bodies of water and high mountains. The healthfulness of the climate, its humidity, and its adaptation to the raising of the prevailing crops should be considered. Comparison with the climate of other localities in the same latitude is also often desirable.

VI. *Products*. Products can best be studied under three divisions: agricultural, mineral, and manufactured. Agricultural products depend upon climate, soil, and drainage. Whether they are of animal or vegetable origin should be noticed, also the relation of grain raising to the production of neat cattle, swine, and dairy products. This topic is particularly worthy of consideration in studying any of the great states of the Mississippi valley or the Northwest.

The mineral products of some states are of great importance, such as the coal of Illinois, and natural gas and petroleum of Indiana and Ohio. In the mountain states these products take the form of ores, whose mining and reduction greatly contribute to the industry of the state.

Manufactured products usually depend upon a near supply of raw material and power and are therefore very closely related to the other two classes of products. The great steel plants in Illinois are located where they are on account of the presence of coal, and the glass factories in the gas belt in Indiana are located with particular reference to this supply of natural gas. Transportation facilities also determine the location of many manufactories. All these conditions should be considered in studying the manufactures of a state.

VII. *People.* The nationalities represented and general characteristics of the people of a state are largely dependent upon its industries. In agricultural regions we find one type, in mining regions another, and in manufacturing regions another. It often happens that a combination of these industries causes several classes of people to mingle in the same locality. A knowledge of these conditions is necessary to the intelligent study of the population.

VIII. *Cities.* The most important cities should be located, and reasons for their location discerned. A few may demand special study on account of their size, industries, or other special features. Such cities as Chicago, St. Louis, Omaha, etc., are of importance on account of their size. They have become great commercial centers and are the homes of industries of more than passing importance. The location of a city like Minneapolis is significant for its water power, and its proximity to the great wheat and lumber regions. The relation of such cities as Duluth and Buffalo to transportation facilities is also important. These illustrations call attention to the features which should be taken into consideration in the study of cities. The capital of the state merits attention as the seat of government, and contains points of interest peculiar to itself.

IX. *Commerce.* This includes a study of the railway lines, canals, and navigable rivers and lakes that are within the state. The relation of the location of railways and canals to the surrounding country is particularly significant. The great commercial centers must also be studied in connection with the commercial routes. The imports and exports of the state, the most important sources of her wealth, and the relation of her natural products to her industries should also be taken into consideration.

X. *Government.* This subject will be treated in a special article in the next number of the Aid.

XI. *Education.* While the system of education may be considered a part of the state government, it is of sufficient importance to demand special study. Every teacher should be familiar with the educational system of his or her state. This knowledge of the system should include the plan of organization of schools of all grades from the country school to the state university; the arrangements for revenue; the plan of school elections, and especially an acquaintance with those laws pertaining directly to the teacher's rights and obligations.

XII. *State Institutions.* Every state has institutions of an educational, a charitable, and a penal character. Each of these has its peculiar function in society. The location of each of these institutions should be known, also the purpose for which it was established and the manner in which it is managed.

XIII. *Places of Historic Interest.* Each state has its hallowed ground,—places where influences have originated and deeds been performed which have affected its entire history. These places may not be of any special importance from a geographical or commercial standpoint, but they should be

remembered on account of their historical associations. Such places are Kaskaskia, Illinois, and Vincennes, Indiana. Some localities have become important on account of their association in literature, and should likewise be remembered. Minnehaha Falls is an almost insignificant cascade and possesses no greater attractions than many another waterfall which is unknown, but its association in literature is such as to give it special prominence, and in a study of Minnesota it must be considered.

The outline here given for the study of a state applies equally well to the study of a county, except that certain institutions peculiar to the county should here receive the attention given state institutions in the study of the state. Any general plan for the study of locality must necessarily be modified by the peculiarities of the locality to which it is applied, and this modification must remain in the hands of the teacher.

The study of industries forms one of the most important subjects in connection with the study of local geography.

There are abundant sources upon which one can draw for data. These are found in state histories, the state editions of geographies, reports of state boards of agriculture, state institutions, the state superintendent of public instruction, etc. Many large industrial establishments often send out informational circulars which are of great value. State and county papers also frequently contain valuable material. For the study of industries such works as Sargent's *Corn Plants*, Rocheleau's *Great American Industries* (three volumes), Greene's *Coal and the Coal Mines*, and frequent articles in the leading magazines, are helpful.

STATE GEOGRAPHY.

- I. Location.
 - 1. Latitude and longitude.
 - 2. Position in the country.
 - 3. Boundaries.
- II. Extent.
 - 1. Length. 2. Breadth. 3. Area.
- III. Surface.
 - 1. General idea.
 - 2. Watersheds.
 - 3. Hills and mountains.
 - 4. Plains.
- IV. Drainage.
 - 1. River systems.
 - 2. Special streams.
 - 3. Sources — lakes and springs.
- V. Climate.
 - 1. Causes.
 - 2. Healthfulness.
 - 3. Adaptation to industries.
 - 4. Comparison with other localities.
- VI. Products.
 - 1. Agricultural. Crops. Domestic animals. Dairy — etc.
 - 2. Mineral. Fuels. Ores.
 - 3. Manufactories.
- VII. People.
- VIII. Cities.
 - 1. Location. 2. Commercial importance.
 - 3. Special features. 4. State capital.
- IX. Commerce.
 - 1. Railways and canals. 2. Navigable rivers. 3. Commercial centers.
- X. Government.
- XI. Education.
- XII. State Institutions.
- XIII. Places of Historic Interest
- XIV. Special Study of Industries.

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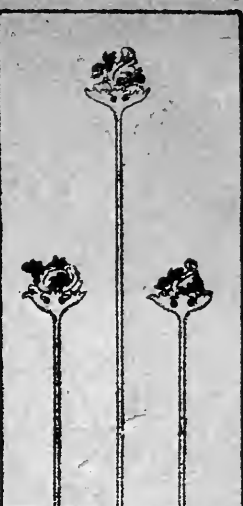
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The Home Student's Aid



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EIGHTH
NUMBER



HOME STUDENT'S AID.

W. F. ROCHELEAU, EDITOR.

Published by

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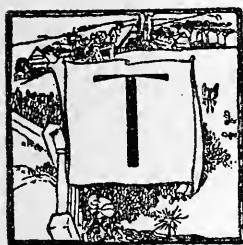
HOME STUDENT'S AID



SUPPLEMENTING THE
OUTLINE TEXT OF THE
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EXPRESSIVE READING.



THE amount that any person reads aloud is very small when compared with what he reads to himself. But silent reading is in a sense selfish, while oral reading is for the benefit and pleasure of others. To the teacher nothing is more important and of greater benefit than the power to read agreeably and effectively. This power seems to come to many people naturally, while others acquire it only by serious study and continuous practice. But no matter how great the gift, nor how serious the effort, both are much assisted by an intelligent understanding of what is necessary to pleasant oral expression.

Inflections and Emphasis.—In the first place no one can read well who has not thoroughly mastered the thought in what he reads. If he is compelled to search his mind for the meaning of words or to grasp the complete idea of a sentence, he unwittingly pauses and hesitates at the wrong point, and so confuses the ideas of his hearers. When the thought is thoroughly mastered, certain powers of expression take care of themselves. If a person understands what

he reads, his inflections are ordinarily correct. His voice rises where it should and falls where the meaning requires it. Moreover, he places the emphasis on the correct words, and by so doing puts nothing confusing in the way of the hearer. These facts throw light on the teaching of reading. If a pupil's emphasis or inflections are wrong, it is because he does not understand what he reads. It is useless to tell him to let the voice rise at such a point, or to emphasize such another word. He may follow directions, but it does not in the least improve his subsequent reading. By proper questioning the teacher should find whether the difficulty lies in failure to understand the meaning of certain words, or in a failure to grasp the general idea of the sentence. In either case when the meaning has been made clear to the pupil, his voice will naturally and unaffectedly rise and fall, or increase its stress in the most natural manner. Imitation of a teacher's best reading never taught a pupil proper inflections or correct emphasis.

Emotional States.—A person may read with perfect inflection and most accurate emphasis and yet fail altogether to convey the real feeling of the author. It is essential not only that a reader master the thought, but that he be able to feel the emotions that possessed the author or manifested themselves in the characters that he describes. If a person is thoroughly mastered by the sentiment of a selection, the quality of his voice will modify itself; and unless by some defect the organs of speech fail to respond to the behests laid upon them, he will unconsciously give the proper pitch and force, and speak at the rate most suitable to express his feelings. When this is done, we have perfectly natural reading,—the highest art. However, a knowledge of the means of expression is necessary in order that a per-

son may teach this art with any degree of success. The teacher should know enough about the organs of speech and their proper function to detect at once the particular fault which militates against agreeable expression by the student. Defects in utterance are frequently curable by a little attention and the proper exercise of an organ.

The essentials for effective and agreeable reading are, then,—an agreeable manner, sympathetic facial expression, and a voice that meets all requirements in quality, quantity, pitch and modulation, and rate of utterance.

Time.—The extent or breadth of thought and the rapidity of action in the selection read, control time in reading. There is a certain medium or ordinary time in which are read those selections that are in no way emotional, but are like commonplace descriptions, not calculated to stir the feelings at all. This medium, or standard, time may be made more rapid or slower in two ways: First, by the quantity of time taken in the utterance of certain words or syllables; and secondly, by pauses between sentences or groups of words. The rate depends more upon the grouping of words than upon the utterance of syllables. It is perfectly natural for us to utter with one impulse those words which are closely related. These words so uttered form a group which is very frequently quite independent of punctuation. A little study will show any one that other than terminal marks do not govern the pauses in reading. Commas are almost entirely disregarded. They are inserted for rhetorical and not for elocutionary purposes.

When a pupil reads too rapidly it means that his mind is not sufficiently occupied with the thought. He may understand what he reads, but the thought has not made sufficient impression. He does not realize its full value and extent.

If he reads too slowly, it means that he is naturally slow, or that the words come to him through his eyes slowly, or that he makes too much of minor ideas. A little judicious questioning will determine which of these is his trouble, and then the teacher will know how to set about removing it. Drilling is practically useless. A pupil may be made to read more slowly or more rapidly by drill, but the rate of his reading becomes purely mechanical, and the pauses are forced and unnatural. Undue rapidity or slowness are not the worst faults which a reader may have. We can hurry our own minds to keep pace with him, if in other respects his expression is good. So time depends upon the feelings and the mental attitude that a person has toward a selection he reads. Find the central idea, group the others about it in proper degrees of subordination, enlist the feelings in what is being read, and the time will be correct.

Pitch.—Much depends upon the pitch of the voice in reading. The key upon which one reads may be either medium or low or high, and it depends largely upon physiological conditions. If the vocal cords are tense, the pitch is high. Accordingly, any state of mind that produces tense vocal cords produces high pitch in the voice. A person can forcibly tighten his vocal cords and utter sounds at high pitch, but they are strained, artificial, and unnatural, unless a certain amount of feeling goes with the effort. The melodies that make music so attractive to us are merely variations in pitch. In reading, these melodies appear with as great frequency, but do not form as prominent a part of the art. They are more hampered by the words which contain inharmonious combinations of sounds and by the fact that feeling in reading is rarely so important a factor as it is in music. Nevertheless those melodies which proceed from the

modulation of the voice are governed by the state of mind of the person who is reading. His purpose, determination, or will, affect what he says. If a pupil's voice is pitched too high, is harsh and unmelodious (as is often the case where he has been much drilled in reading), the remedy is not further drill, but is by way of a process of forgetting. He must forget that he is reading, and must be taught to feel that he is talking. He may gain something by imitation here, if his standards are low, but again it is not so much the imitation of the teacher as the proper state of his own feeling. He reads harshly because he thinks he *must* read, and the nervous tension under which he labors has tightened his vocal cords in spite of his will. If he can be taught to forget that there is any compulsion about it, and can read as he talks, the harshness and unnatural pitch will disappear from his voice.

Quality.—The quality of voice has to do almost entirely with the emotions. Tenderness, harshness, awe, and fear all produce their effect upon the voice. In an unemotional state a person speaks in normal quality and in a tone that is natural to himself. If the same person is frightened, or his animosity is aroused and hate takes possession of his soul, he speaks in an aspirated tone as certainly as he speaks at all. If he feels harshly toward any one, and angry, his voice possesses that guttural quality which indicates the more severe and harsh emotions. When he is moved by feelings of grandeur and sublimity, his voice naturally takes that full, round quality which we call the orotund.

Upon these facts depends the treatment a teacher should give a pupil whose voice does not possess that quality he wishes. In some way he must stir the emotions of the pupil. This may be rather a hard thing to do, particularly with

boys of a certain age, when a show of feeling appears to them childish and ridiculous. But one usually finds then that emotions which are childish and ridiculous in their minds are merely those of affection and love and tenderness, while they may be readily appealed to by the more powerful and the rougher emotions. Courage and bravery, daring deeds and heroic exploits, will move them to admiration and their voices will respond readily, as far as they are capable. Usually at this period of life their voices are not wholly under control, and the rapidly increasing size of the larynx and vocal cords makes the boy awkward in their use, and sensitive to the new and unexpected tones that issue from his throat. This shows simply that the teacher must choose with some degree of skill what selections he will ask his pupils to read, and that at certain ages he must be content with little progress and small results.

Force.—Force depends upon the quantity of mental energy a person possesses, and that is dependent again upon the emotions. If one feels vigorously and is thoroughly in earnest in what he is trying to accomplish, his voice becomes loud and full of force. It is possible for a person to speak forcibly under direction, but then the force is unnatural, and shows at once that it does not come from real feeling. There is a little value, perhaps, in drill exercises which show the different kinds of time, pitch, quality, and force, until the standards have been established, but after the pupil has learned what constitutes the different qualities of voice, or the different degrees of force, he will not improve his reading by drill exercises involving them, and prescribed by other people. The process of improvement must come from within. The organs of speech must respond to unconscious stimuli that come from emotional states, if their tones are to be agreeable, natural, and effective.

RECENT LITERATURE.

(Read in connection with eighth number of Literature.)



ENGLISH and American literature of the past twenty years offers peculiar difficulties for study because of its vast amount and its variety. We can at best hope to discover only some of its leading characteristics and to estimate in a general way its value to literary progress.

In the production of poetry, to which the historian of the future will look for indications of the highest literary ability, the period can boast no great achievement. Many as are the poets in America and England, they are all of minor rank. Their literary form is remarkably good, often fine and polished, but there is seldom present the grandeur, depth of sentiment, and clear, far-reaching vision of the great poet. In less imaginative literature there is the same prevalence of average ability. But here we find a marked raising of standards.

History has become the special study of scores of the most mature and able minds in every college and university. The scientific method, which spares no effort in getting truth, is alone recognized in historical research to-day. It penetrates events to their causes, and reveals that interaction of a nation's character and surrounding conditions, which determines its history. Those who have recorded their investigations in a form which has become literature, have shown unprecedented accuracy in judging of the relative value of facts. This symmetry of thoroughly verified subject-matter

added to a clear, graceful style of expression marks the definite progress of the period in historical literature. Eminent among American historians is John Fiske.

In criticism there has been definite advance. We note a widening of the field of activity and increased fineness and keenness of insight. Little progress has as yet been made, however, toward a system of standards which may be universally applied. Edmund Clarence Stedman, more celebrated as a poet, is an example from the highest rank of American critics.

Humorous literature, especially in our country, has gone through a refining process by the efforts of such artists as Charles Dudley Warner and Mark Twain. Mr. Warner is an author who has not been confined to one line of production. He is at once critic, novelist, and biographer, and is notable as one of those who have contributed much to the development of a most important form of present literature — the essay.

A peculiar value and popularity has become attached to the essay in recent times. It is the medium through which a great portion of the scientific, philosophic, and religious truth of the age reaches the people. It is commonly used, even by the greatest of our writers. The chief cause of its popularity is found in the development of the periodical, another of the distinguishing features of our literature.

Not only have magazines and newspapers made the essay popular, but the essay has in turn aided powerfully in raising these publications to excellence and importance. The forms and volume of periodical writing have so multiplied in the last few years that there has been an inevitable production of much that has no lasting merit. Deficiencies due to the haste with which even very good writers turn out

their work, and the cheap sentiment and commonplace expression which have made some magazines and journals popular, have led critics to declare that the periodical can not rank as literature. The falsity of such a sweeping criticism is evident when we consider how large a part of the best imaginative work and popular expression of newly discovered truth comes to us first in the serials and in the essays of magazines.

Finally, we come to fiction, the literature in which our period has made most significant development. The characteristic form of the fiction of our period and of our country, especially, is the short story. This has attained a completeness and symmetry of structure and an excellence of finish which place it among the best literature. Its scope of subject-matter, too, has enlarged in a promising way. It need no longer be confined to the conventional love-tale, but finds a theme in everything which is of near human interest.

It is, however, in the novel that we find the tendencies of our time more clearly and faithfully mirrored. In this age we have been demanding of science that it tell us not what things ought to be, but what they are. We have been asking of religion that it give us truth, even if this be fatal to our happiness. We have required philosophy to furnish us with practical methods of living, not with far-off ideals. Could we expect our literature to escape the influence of this desire for the real, the truthful, the practical? Our literature turned inevitably to realism. This tendency developed primarily from the attitude of the age. It also received a strong impulse from foreign writers, notably the great realistic leaders, Zola, Ibsen, and Tolstoi.

The general doctrine of realism as held by the American

School, among whom William Dean Howells ranks prominently, is that an author must give us life just as he finds it; men and women must appear with their common frailties and their complex motives; nothing must be *put into* their characters with the purpose of making them heroes and heroines. From another of the leaders of the American school, Henry James, the realistic novel has received a peculiar turn in its development. Mr. James regards the plot as an entirely unnatural feature of a novel. In actual life we do not find the rewards for suffering, the revenges, the justifications, which are crowded into an ordinary novel. The purpose and meaning of life are something too great to be cramped into a plot. Hence we must try to portray faithfully any given portion of life without attempting to treat it as though it were a complete whole.

Realism, thus established in America by these influential authors, has spread and developed in a multitude of forms. Important among these is our vast local literature, which abounds in skillful and faithful pictures of life. We have learned from such writers as Bret Harte of the peculiarities of the western pioneer and California miner. Thomas Nelson Page and Joel Chandler Harris have told us of the Virginia negro. George W. Cable has accurately pictured the creole, and Miss Murfree the Tennessee mountaineer. Edward Eggleston, Mary Wilkins, and others, ably represent other localities. Thus are the widely varying phases of our American civilization minutely delineated. The same tendency is at work in British literature, as is shown in Scotch and other dialect stories.

Another of the impressions which realism has left on fiction is apparent in the ever-growing interest in a searching analysis of character. More and more stress is laid on the

motives which lead to action rather than upon action itself. This tendency appears most fully in the psychological or character novels.

But as with all else that reaches excess, there has been a reaction against realism. People weary of the commonplace in scene and action and conversation, and of prolonged character study. They turn to something which amuses, which offers change of scene and unusual circumstances. The demand is for a story as a story. This reaction has taken definite shape in England in the school known as the New Romanticism. Of this, Robert Louis Stevenson was the founder; A. Conan Doyle, Stanley Weyman, and Anthony Hope are leaders. In America the reaction is evidenced in the interest shown in religious and historical romances such as those of Lew Wallace and F. Marion Crawford.

There is something deeper than mere fickleness of popular feeling which accounts for this turning from realism. It has defects which make its decline inevitable. As a theory it has much excellence; in practice it has led to an erroneous portrayal of life. The dark, morbid, often vile aspects of existence have been over-emphasized, especially by foreign writers, and the brighter, inspiring phases have been neglected. Only half of the truth has thus been given. Moreover, many of the realistic novels are but series of photographs. Unquestionably they are accurate, but there is a lack of meaning. It is as though we were suddenly deprived of memory and imagination, and asked to look at a house in the distance. We could see two surfaces meeting at an angle and would believe this the extent of the building. Such flatness is too prevalent in realistic writing. We need the author's imagination to illumine and interpret. Thus, in its prevalence, realism is doomed to pass, but in

its influence it must long remain a living factor in our literature.

The effects of this school of fiction and of the reaction from it are well illustrated in the very recent literature. Of the three most popular novels of 1899, *David Harum* is entirely realistic — an accurate picture of a peculiar type of character. *Janice Meredith* and *Richard Carvel*, on the other hand, are romances which please because they are so filled with American sentiment and are good stories. Among the most popular novels of 1900, we find *Tommy and Grizel*, the work of a Scotch realist. This book is an illustration of many of the best characteristics of realism and has, besides, a charm of its own. We find here character unsparingly analyzed, but not coldly dissected. Where Mr. James would stand aloof, as an impartial critic, Mr. Barrie has by sympathy identified himself with his characters. He not only feels as they feel, but gives us their point of view, and thus enables us to judge them more generously and intelligently. This is realism, but without flatness. By some magic, Barrie introduces us into the very hearts of his men and women, and all their actions must henceforth be intelligible. This character-study takes the place of plot, but so absorbed do we become in it that we never think of asking for more action. For contrast, we may select the popular American novel of the same year, *To Have and to Hold*. In this, Miss Johnston has given us a very interesting and attractive story of early colonial Virginia, and much good art in the way in which it is told. Other less popular works offer abundance of further illustration.

The new century has thus begun with a fiction compounded of widely varying tendencies. In what channel they will unite, to what purpose they are moving, we cannot know. That they are serving as a means to something greater seems

most probable. And not only in fiction, but in all branches of literature, preparation sounds the keynote of our period. The most general phase of this preparation is the remarkable finish of literary form which has become so widespread that the average writer of to-day equals in this respect eminent authors of previous eras. Unusual excellence extends no farther than form, however. Creative skill, power of originating, are lacking in a marked degree. There are no literary giants, no splendid productions. This indeed is the chief justification for believing the period to be a stage of transition in literary progress.

For further evidence we have but to review the development in the specific types of literature. Poetry, though it has fallen off decidedly from the art of Poe and of Tennyson, is adapting itself to the varied phases and newer aspirations of our civilization, and is paving the way for genius. There is a steady advance toward a philosophy of history. Criticism, largely because it has become the art of some of the finest minds, is taking on an importance never before possessed. Humor has emerged from the state of crudeness and grossness and is reaching ever higher planes. In fiction the characteristic development is found in the short story and in the tendency to realism. The former has broadened the field of interest in fiction; the latter has helped clear away affectation and flimsy sentiment and has substituted more truthful art. Skillful presentation of all kinds of life, and an enlightened faithfulness in character analysis must grow in our fiction. There seems some ground, too, for the belief that the novel may develop in a way analogous to that of the short story. Already the medium of much of our discussion of religion, politics, science, and art, it may outgrow the limitations of the love-story until it embodies in the highest form of artistic prose every important interest in life.

AFRICA.

(Read as supplemental to Geography.)



ABOUT the middle of the 15th century a Portuguese expedition discovered the southern point of Africa by accident, and this led ultimately to the establishment of an ocean route between the ports of Europe and those of India and the countries farther east. The discovery of America a few years after the discovery of the Cape of Good Hope, however, caused the energies of Europe to be directed to the new world rather than to Africa, and it was not until within the latter half of the 19th century that the civilized world gave the "Dark Continent" any attention.

As the Portuguese were the leaders in the earlier African expeditions so the English have been the leaders in the later attempts to reveal to the world the secrets of the interior of this vast continent. Prominent among the English explorers of this later period are Livingstone, Speke, Baker, and Stanley. While each of these men made important contributions to the knowledge of the continent, the work of Livingstone and Stanley transcends that of the others to such an extent as to make their names forever associated with the history of modern African civilization. Fifty years ago the map of the interior of Africa was a blank. To-day this portion of the continent is better known than was the interior of North America at the Treaty of Paris in 1783, and this is largely due to the wisdom and energy of these two men. Their explorations formed the basis of those movements which have culminated in the present political situation.

Independent States.—The African states maintaining an independent government are few in number. They comprise Morocco, in the northwest; Liberia, on the west; Abyssinia, in the eastern part; and the Congo Free state, in the south central part. All the other divisions are colonies of European powers.

British Possessions.—Great Britain early gained possession of the strategic points of the continent. By treaty with Holland she acquired Cape Colony in 1815. She secured Aden, the Asiatic coast of Bab-el-Mandeb, in 1839; she also controls the Mediterranean entrance to the Suez canal, and has an important point on the western coast in the Colony of Sierra Leone. The British possessions in the interior are extensive and valuable. Extending northward from Cape Colony they include a stretch of country about 1,800 miles in length and varying in width from 300 to 1,000 miles. The coast line of this country extends to the Orange River on the west coast, and to Delagoa Bay on the east. The great interior province is known as Rhodesia from its celebrated founder Cecil Rhodes. To the west we find German South-west Africa, and a portion of Guinea, a Portuguese possession. The east is also bounded by Portuguese territory. Extending southward from the Mediterranean we find the possessions which include Egypt, British Soudan, and British East Africa. The other possessions of importance are known as the Niger territories. Egypt is nominally tributary to the Sultan of Turkey, but is practically a British possession with every prospect of remaining such. This, and the colonies in the southern part of the continent, are the most valuable. (See Home Student's Aid, page 47.)

French Possessions.—The French have been land-holders in Africa for some years, the colony of Algeria dating from

1830, and that of Madagascar from 1884. They have now assumed control of a large portion of the country to the south and west of Algeria. This territory is back of the British and German colonies on the Bight of Biafra, and has about 750 miles of coast line bordering the Atlantic. French Congo extends northward from the river for 600 miles or more, and inland to the north and east for a great distance. This is in a fertile tropical region, which abounds in valuable native products. All told, the French territory exceeds the British by a little over a half million square miles, but much of it, especially south of Algeria, is of little or no value on account of the great desert. The comparison of values in their holdings is decidedly in favor of Great Britain.

German Possessions.—The German possessions are included in the Kamerun country, on the Bight of Biafra, German Southwest Africa, and German East Africa. Of these the last-named colony is by far the most important. It occupies a highly strategic position in reference to British territory, and is also in a fertile and healthful region.

Other Possessions.—The Mediterranean states of Tripoli and Barca belong to the Turkish empire. Spain has a claim on the northwestern coast. Portugal has two extensive claims in South Africa, Guinea on the west, and the state of East Africa, including the districts of Lorenzo Marquez and Mozambique on the east coast. Italy claims most of the territory between British East Africa and the coast, but has not been able to extend control over Abyssinia. None of these possessions has practically been opened to civilization or commerce except that of Lorenzo Marquez.

A study of the map shows that nearly the entire continent is now under the control of civilized governments, and that most of this control is in colonial form. Excepting

Abyssinia and Morocco, the independent states were colonial in their origin. Abyssinia has been an independent nation for more than 2,000 years. The people are sturdy and independent, and resist every attempt to subject them to the control of a foreign power. They belong to the Caucasian race, but have such dark complexions that their appearance is deceptive.

The Congo Free State is a political off-shoot of the Belgian government. It was established under its present status in 1885. While affiliated with Belgium commercially, it is recognized as an independent state. The government resides in Brussels, and is administered by a local governor-general, who lives at Boma, the capital. The area of the state is a little over 900,000 square miles, and it has a population variously estimated at from 32,000,000 to 40,000,000. The people are open to the influences of civilization, and with few exceptions kindly disposed towards the government.

The recent war between the British and Boers has caused the Dutch republics of Transvaal and the Orange Free State to lose their independence, and henceforth they will be governed as British provinces. The Boers were a pastoral people, and their country was sparsely settled. The climate of this country is temperate and dry, and well suited to grazing purposes.

Civilization.—All grades of civilization, from the culture of European and American cities to cannibalism, are found on the continent. Some of the native tribes in the heart of the interior are fierce, and have not been touched by any civilizing influences. It is gratifying to know, however, that the tribes which have come under the influence of the European governments, particularly those of Great Britain and the Congo Free State, have been greatly benefited. The native

government is tribal, and the tribes in the central portion of the continent have not been accustomed to unite to any extent under one government. They were unable to resist the attacks of Arab slave hunters, and for many years the slave trade had been their greatest curse. Under the influence of the present system this traffic has been stopped, and the natives are enabled to live in peace and security.

Many of the tribes are quite skillful in tilling the soil and working iron. The Congo Free State is making special efforts to teach the inhabitants better methods of agriculture, and to introduce improved tools and machinery for their use. The country is unusually productive, and ample returns in the increase of commercial products will be made for their outlay. What is true of the Congo Free State in this respect is also true to a greater or less extent of all colonial possessions.

Products.—The products of Africa are as varied as the soil and climate of such a great continent can produce. In the north we find a great variety of grains and fruits common to the temperate regions. Egypt seems to have been the home of many of the plants which have been most serviceable in furnishing the human race with food and clothing. The products of the southern part of the continent are similar to those of the northern portion, varying only as local conditions require. While the species often differ, the great classes of plants remain the same.

The tropical regions abound in a luxuriance of vegetable and animal life nowhere else equaled. This is the home of the most extensive forests in the world. The greater portion of these are yet unexplored, but those portions which are known contain many varieties of valuable timber, as well as numerous fiber and gum trees. From this region much of

the world's supply of gum copal and rubber is destined to come. Most of the ivory exported from Africa also comes from these forests.

The mineral resources of the continent have not been determined. It is known that quite extensive deposits of iron ore exist in the basin of the Congo. There is an abundance of good building stone of great variety and durability. Certain localities in South Africa seem to abound in diamonds and gold and silver. The diamond mines at Kimberley were opened in 1868, and up to the breaking out of the Boer war over \$350,000,000 worth of uncut diamonds had been taken from them. Their product is 98 per cent of the diamond production of the world. These mines are about 600 miles north of Cape Town.

To the north and east of Kimberley, the great gold regions of Witwaterstrand are located. Johannesburg, the seat of the greatest mines yet developed, is about 250 miles distant. The Witwaterstrand is a long, narrow ridge of land containing large quantities of gold-bearing rock. The mines at the Rand and at Johannesburg are the most important. They were opened in 1883. In ten years the annual production of gold rose from \$5,000,000 to \$55,000,000. Since 1884 the total product of the Rand exceeds \$300,000,000. These are the richest gold mines in the world, and their extent is not yet known.

Means of Communication.—These are being extended all through the continent, as rapidly as capital and other circumstances make it possible. The great Cape and Cairo Railway, which is to connect points 6,600 miles apart, is projected and portions of it are already constructed. It extends northward from Cape Town to Buluwayo in Rhodesia, a distance of about 1,200 miles, and southward from Alexandria to

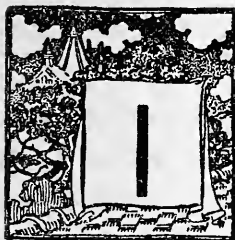
Khartum, a distance of 1,300 miles. This leaves over 4,000 to be completed, but gigantic as the task may seem, in due time it will be accomplished. All but 600 miles of the system will traverse British territory. Already a telegraph line has been constructed as far north as the southern extremity of Lake Tanganyika. Numerous crosslines of railway have been begun to meet the great central system at various points along its course. Cape Colony and Egypt also have several lines of railway constituting other systems. A fleet of over twenty steamers is now on the Congo and its tributaries. The stations along these rivers are connected by telegraph and telephone, and a railway from the coast to Leopoldville brings the navigable portions of this great river system in direct contact with ocean ports.

Commerce.—The commerce of African countries is still in its infancy, but during the last decade it has increased very rapidly. That of the Congo Free State is largely with Belgium, and each of the dependencies trades mostly with its home country. The exports are the native products and the imports such articles as the natives and resident Europeans desire. When the great population becomes awakened to the benefits arising from an interchange of commodities, this traffic will assume proportions far beyond anything we can now predict.

While the conditions surrounding Africa are such as to contain a large element of uncertainty, yet all things seem to be tending towards the leading of the entire continent to a high degree of civilization and prosperity.

LOCAL GOVERNMENT.

(To be read in connection with Constitution of the United States, in the eighth number.)



IN the study of the general government, we have seen that many features of its Constitution were first found in the colonial and early state governments. In subdivisions of the state for local government many other resemblances appear, often in modified forms. The similarity both in form and subjects included, between the national Constitution and the Constitution of the states is more marked in states lately admitted into the Union.

The Constitution of each state undertakes not so much to provide what the state government may do, as to enumerate the things which it may not do, and the rights of the people which it may not limit or destroy.

Citizens of the United States live under three distinct governments: First, and highest, the United States government; second, the state government; and third, the local government.

Each state has its separate government, with full control over all matters except those which have been by the Constitution prohibited to it or granted to the United States. These states vary in size from that of Texas, the largest, with an area of 265,780 square miles, to that of Rhode Island, the smallest, with 1,250 square miles; and in population from that of New York, of seven and a quarter millions, to that of Nevada, of about forty-two thousand. Texas alone is greater territorially than either France or Germany.

Since the states have control of all matters except the few which the federal constitution prohibits and the few general powers given to the federal government, it will be impossible to enumerate all of the different subjects over which the state governments might, if they saw fit, extend their authority. In a general way it may be said that they regulate nearly all of the private relations of their citizens, the laws of husband and wife, principal and agent, and of contracts. They provide for the detection and punishment of crimes. They control and mainly support the militia of the country. Railroad, banking, insurance, and other corporations are chartered and controlled by them. The construction and maintenance of roads, the determination of the rights of suffrage, and the control of their own elections, are among the exclusive powers of state governments. Our extensive systems of public schools are likewise created and maintained by the states. The state takes care of the defective classes, of the insane, paupers, etc., and, in general, performs all those ordinary duties which naturally pertain to the internal affairs of any state. It also creates and controls all the systems of local governments.

Closely resembling in their organization that of the federal government, all the states have:

1. A Constitution.
2. A legislature of two houses.
3. An executive, termed a governor. Other executive officials are the lieutenant governor, a secretary of state, treasurer, etc.
4. A system of local taxation.
5. A system of local government in towns, counties, cities, etc.

6. A body of state laws enacted by the legislature.

7. A system of courts.

A normal state constitution has the following provisions: —

1. A definition of the state boundaries.

2. A bill of rights (guaranteeing private rights, such as freedom of the press and speech, trial by jury in criminal cases, rights to assemble and petition, etc.).

3. A frame of government, an enumeration of officers and powers of legislature, executive, courts of justice, etc.

4. Miscellaneous provisions relating to the administration of schools, militia, taxation, debts, local government, corporations, amendments, etc.

The law-making authority in all the states consists of two houses, of which the upper and smaller branch is called the senate, and the lower and more numerous branch usually the house of representatives. The members of both houses are elected by popular vote, and senators are usually chosen for longer periods than the representatives. The number of members in the general assemblies varies greatly. In the senate Utah has the smallest number, 12, and Minnesota the largest, 54. In the lower house Utah has likewise the smallest number, 24, while New Hampshire has the greatest, 363. In most states the legislatures sit biennially, and the length of their sessions varies greatly. The state legislatures have full charge and control of all local governments within the state. In all states except four, acts of the legislature require the signature of the governor before they become laws. To pass a bill over a veto requires in some states a two-thirds vote in both houses, in others a three-fourths vote, and in others a majority vote of the total number of members.

The state judiciary includes three sets of courts:

1. A supreme court, from which cases involving federal questions may be appealed to the supreme court of the United States.

2. Superior courts of record, next below the state supreme court.

3. Various local courts, such as county courts, corporation courts, etc.

The principal duties of local governments are those of education, police, sanitation, charity, the construction and maintenance of public roads, the administration of justice, the assessment and collection of taxes, etc.

There are three types of local government in the United States: first, the New England type, in which the unit of government is the town or township; second, the Southern type, in which the unit is the county; and third, the Western system, in which the New England and Southern systems are combined.

In the New England town the people govern themselves directly, and the township form of government is thus that of a pure democracy. All the qualified voters of the town meet in the town meeting once each year, the reports of officers for the closing year are read, the amount of taxes to be raised and expenditures to be made during the ensuing year are determined upon, and the executive officers of the township are chosen.

In the South the smallest unit for local government, the county, is managed by a board of county commissioners, elected not in open meeting, but by ballot in the different voting precincts of the county. County government, therefore, is a representative government.

In the West we find the New England and Southern systems combined in various degrees. The smallest unit for

local purposes is usually the township, and there is also a county government.

When any small area becomes thickly settled, a charter is often granted by the general assembly of the state for incorporating the area as a city. The people of the city are thus privileged to levy taxes and to carry out public improvements under their own local government. The form of government in most large cities is a reproduction of the state government. The more important functions of a city government are:

1. The collection of municipal and state taxes.
 2. The establishment and care of public schools.
 3. The administration of justice.
 4. Police supervision.
 5. The maintenance of a fire department.
 6. The care of streets.
 7. Sewerage.
 8. Water supply.
 9. Public parks.
 10. Prisons.
 11. Supervision of the liquor traffic.
 12. Regulation of street railways.
 13. Enforcement of building regulations.
 14. The supervision of charities, hospitals, asylums, etc.
- In order that duties of a general interest and benefit may

be performed, vast sums of money must be raised and expended for public purposes. The chief source from which such sums are derived is taxation. State and local taxes, as a rule, are for convenience collected at the same time by the same officials. The usual method is as follows: The legislature of the state, having determined what income is needed,

apportions this sum among the counties, or, in New England, directly among the townships, in proportion to the value of the property situated within them, or establishes a certain percentage tax on all property, to be collected in the same manner. So, similarly, the counties apportion among the cities and townships within their areas, in proportion to the value of their taxable property, not only what they have to pay to the state, but also the sums they have to raise for county purposes. Thus the township or city authorities collect at one and the same time three distinct taxes,—including school taxes,—the state tax, the county tax, and the city or township tax. Retaining the last for local purposes, they hand over the two former to the county authorities, who in turn, retain the county tax, handing over to the state what belongs to it. Thus trouble and expense are saved in the process of collection, and the citizen sees on one tax paper all he has to pay.

Too much stress can not be laid upon the necessity of cultivating an intelligent and public-spirited interest in one's own local government. It is an unfortunate fact that our citizens are more apt to take a lively interest in national politics than in local affairs; whereas the latter are far more important to them personally, and in the aggregate, to the country at large. It is in the primaries, or the caucuses in the small local subdivisions, that honest and intelligent voters should participate. If only the proper persons are in charge of local affairs, and the proper sentiment prevails, it is almost certain that the state governments will be properly officered and administrated; and if state and local politics are in a healthful condition, it is a guaranty that national politics will not be essentially bad, as the good influences in the local districts will extend to the state and nation.

GENERAL HISTORY NOTES



THE Boxer movement in China was the culmination of a sentiment which has led the Chinese people to resist all progress. China is personified, or rather mummified conservatism. Its people are profoundly ignorant of the extra-Chinese world. They are serenely certain of two things, (1) that the wisdom of their ancestors is sufficient for themselves and for all succeeding generations, and (2) that all extra-Chinese civilization is low and devilish. The emperor, Li Hung Chang, Chang Chi-Tung, and other intelligent and progressive Chinamen are to be excepted from the above statement. The masses of the Chinese people, including the mandarins and people of influence, look upon themselves as a people favored of heaven, and upon all outside people as barbarians.

The Boxers were organized ostensibly as an athletic society, or (as the name implies) a society for the promotion of physical culture through the practice of boxing. The real purpose of the order, however, was the expulsion or extermination of foreigners, who may corrupt the Chosen of Heaven or supplant their customs and their civilization. "The Boxer movement was distinctly foreign, even foreign cloth, watches and matches being taboo." While the "Government" (of which the Empress Dowager is the real head) ostensibly discountenanced the Boxers, it favored them in fact. The emperor favors the influx of modern civilization,—the Empress Dowager, supported by Prince Tuan, father of

the heir apparent, and by other influential Chinamen, opposes it. The government, dominated by the Empress Dowager, secretly approved and encouraged all the excesses — the murder of missionaries and foreigners — committed by the Boxers.

For the first time in history, the capital was deserted by the government. European powers occupied the Sacred City. The wheels of progress have invaded the capital. It has been demonstrated that principalities and powers are powerless against the onward march of civilization. The Ninth and Fourteenth regiments of United States Infantry had their headquarters within the Front Gate, which has never, heretofore, been opened except when the Emperor passed through. The Manchu nobles and the Empress Dowager have achieved, in their effort to drive Western civilization out of the Celestial Empire, only disaster, humiliation, and abject defeat, such as is rare, not to say unexampled, in modern days. "In a tempest of insane passion they have exiled themselves, put an end to Manchu domination, and lost the Decree of Heaven by which alone they have claimed to rule."

In October, 1900, Great Britain and Germany entered into an agreement and invited the acceptance of its principles by the Great Powers. These principles are: (1) that the ports on the rivers and littoral of China should remain free and open to the trade of all countries; (2) the two governments promise not to avail themselves of the present troubles in China to acquire territory in that country, and they will endeavor to preserve the integrity of the Chinese empire; (3) in case any other power tries to seize upon Chinese territory, the two contracting parties will take such action as may be necessary to protect their own interests.

On October 31, 1900, the United States signified to the two governments its acceptance of the first two clauses of the agreement, and stated that it is not concerned with the third clause, which is a matter entirely between the two contracting parties.

CHOICE FICTION ILLUSTRATING HISTORY IN THE NINETEENTH
CENTURY.

Conscript of 1813 (Napoleonic Wars).
Fritz of the Tower (Franco-German War).
Invasion of France (In the year 1814).
Max Kroner (Siege of Strasburg).
Member for Paris (Tale of the Second Empire).
Les Miserables (French convict life — modern).
Only Half a Hero (Franco-German War).
Romance of War (or Highlanders in Spain).
Waterloo (Campaign of 1815).
Bernard Lile (Mexican War).
Bloody Junto (Escape of John Wilkes Booth).
Cameron Hall (Civil War in the United States).
Hilt to Hilt (Shenandoah Valley in 1864).
Mohun (Last Days of Robert E. Lee).
Sustained Honor (War of 1812).
Union (Civil war of 1861–65. John R. Musick).
Fall of Sebastopol (Crimean War).

HISTORY AND GEOGRAPHY.

(Read in connection with seventh and eighth numbers of *Pedagogics and Methods.*)



ALL events happen in time and place; if our knowledge of an event omits either of these elements it is incomplete. While we need to know where an event occurred in order to have a complete knowledge of it, we do not need to know of the events which have transpired in any locality in order to have a complete knowledge of that locality — merely as locality. The geographical element is logically more closely allied to history than the historical element is to geography, yet in teaching, this is often forgotten. Many classes write glibly of campaigns and battles of whose location they have little or no idea, and of whose meaning they have only a meager comprehension.

The wise teacher will see that history and geography are so closely interwoven that the pupils will always associate them in thought. The best results are secured when this is done in the study to which these subjects are related. The work should begin in the lower grades when the pupils begin the study of biography, and continue through the course.

The historic element in geography is vital to the maintenance of the pupil's interest in the subject. We have a peculiar feeling towards those places which have been the scenes of great events, or are closely associated with great men.

The Concord Bridge is in itself unimportant, but when associated with the first battle in the war for our inde-

pendence, becomes an object of universal interest. The old State House in Philadelphia is an unattractive building, and in sharp contrast with the imposing structures in its immediate neighborhood, still it has been the Mecca of Americans for nearly a century, for within its walls were laid the foundations of our republic. Philadelphia means more to the child who associates Independence Hall and its historic memories with the city, than it does to one who has never formed this association.

But the historical element extends far beyond the affairs of state. We associate St. Peter's with Rome, St. Paul's with London, and the Louvre with Paris; and if our association is at all complete, we have woven into it something of the story of each of these structures. We remember Haverhill as the home of Whittier, the Craigie House as the home of Longfellow, and Menlo Park as the location from which have come Edison's inventions. Wherever men who have moved the world have lived and worked, our interest naturally abides, and the teacher should see that the stories of men and events are so associated with the localities to which they belong, that every lesson in geography is a living reality.

While the historical element is essential to interest in geography, the geographical element is more essential to an interest in history. The beauties of Quebec easily make it an object of interest without any knowledge of its historic associations; but no one can understand the conquest of the city by the English without a knowledge of the locality. A full description of locality should accompany an account of the battle. Burgoyne's campaign is another good illustration of the importance of the geographical element. But few pupils realize that Burgoyne was beaten long before he reached Saratoga, simply because these pupils have no knowledge of

the country through which his army had to pass, or of the hardy mountaineers who contributed so largely to his defeat.

Every great battle and military campaign in history has a geographical setting to which its success or failure can be largely attributed. The pupils in history should always have their map before them and should associate the description of the locality with the event.

There is a third association which is also important. This connects the history of the industrial growth of a people with the localities in which the great industries had their beginning. Since these industries form the basis of commercial enterprises, their association with great commercial centers and lines of transportation is also important. The geography of Pennsylvania is incomplete without the story of the discovery of anthracite and petroleum; that of Illinois, without the history of coal; that of California, without the history of her gold mines; and so on. Nearly every state or country has some industry whose history is vital to a complete knowledge of its geography. This is equally true of the great engineering enterprises. The geography of New York calls for the study of the Brooklyn Bridge; that of St. Louis, of the Eads Bridge; that of New Orleans, of the jetties of the Mississippi; and that of Egypt, of the Suez canal.

The limits of this article preclude an outline of procedure. However, no complicated method is necessary. The associations should be made as the study of the subject leads to them. The teacher should use care to select such information as the pupils can understand, and as will interest them, then refer them to works where further information can be obtained. This plan will lead the pupils to acquire the habit of collateral reading, and also assist them in properly classifying their knowledge.

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